THE FUTURE CITIZEN AND HIS MOTHER

By

Charles Porter

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THE FUTURE CITIZEN

AND

HIS MOTHER

THE CHADWICK LIBRARY

THE FUTURE CITIZEN AND HIS MOTHER

BEING A SERIES OF CHADWICK LECTURES ON MATERNITY AND CHILD WELFARE

BY

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WITH A FOREWORD

BY

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To

MRS. HAROLD WILSON

(HONORARY SECRETARY)

AND THE

MEMBERS AND WORKERS OF THE

ST. MARYLEBONE HEALTH SOCIETY,

AS A RECOGNITION IN SOME SORT OF THE VALUABLE

WORK SHE AND THEY HAVE DONE AND ARE

DOING ON BEHALF OF THE MOTHERS

AND CHILDREN OF

ST. MARYLEBONE.

AUTHOR'S PREFACE

THE contents of this book are based upon a series of public lectures delivered under the auspices of the Chadwick Trust. The object of the Trust is to spread knowledge with regard to health and health matters as widely as possible by means of lectures to the public and otherwise. The lectures here reproduced were given in order to show simply and clearly how matters stood in relation to the health of the youngest members of the population and to indicate what was done, and what might be done, with a view to improving the life and health chances of these little citizens.

The audiences at the lectures were members of the general public and the lectures themselves were of the so-called "Popular Lecture" type. Partly because of this, partly because the time was limited, detail was avoided as far as possible and technicalities omitted. A glance at the pages that follow will show this, and will also show that the book makes no pretence at being a treatise on the subject of infantile mortality, its causes and prevention.

A good deal was said with regard to this matter, naturally, and a certain amount of statistical information was given. Most of this was obtained from the official reports of Sir Arthur Newsholme, Medical Officer of the Local Government Board,

whose work on the subject is so well known and whose writings any one who desires to understand it should and must read.

I desire to express my indebtedness to Sir James Crichton-Browne, one of the Chadwick Trustees, for the readiness with which he agreed to write a Foreword for me. I consider myself greatly privileged in being able to include something from the pen of so distinguished a writer. To my mind his contribution constitutes the most attractive feature of the book.

CHARLES PORTER.

LONDON,
March, 1918.

FOREWORD

We are threatened with legislation by advertisement, and huge manifestoes have appeared in the newspapers lately urging the public to get in touch with their Members of Parliament and to push through the Education Bill, or the "Children's Charter," as it is called. But that excellent measure should not require to be supported by exaggerated and misleading statements, and when we are told that education is the sole basis of efficient citizenship and the one essential condition of national welfare and of the industrial prosperity of the country, we must demur. Education is no doubt essential, but feeding comes before education and breeding before that, and if we push on education while feeding and breeding are neglected we shall do more harm than good. Many of the judicious provisions of the Education Bill will, should it become an Act, prove nugatory if our labouring classes are allowed to lapse back into the same conditions as regards wages, housing, and sanitation that existed before the War. The success of education must always largely depend on the quantity and quality of the human material on which it operates, and the quantity and quality of that material, primary considerations in relation to citizenship, must always largely depend on social and economical conditions of which education takes no cognizance.

The publication of Dr. Porter's Chadwick Lectures on "The Future Citizen and his Mother" contemporaneously with the discussion on the Education Bill is, I think, fortunate and opportune, for these lectures are a masterly treatise on the raw material of education and on the methods by which that raw material may be improved in quality and educability.

It does not fall within the scope of Dr. Porter's

inquiry to deal with the grave question—more grave than ever under the depletion of the best of our manhood by the War—of the increasing shortage of the material for education, caused by the falling birth-rate, or with the eugenic problem as to how we may best improve, or prevent, the deterioration of that material by prudent mating, but with simplicity and clearness he explains the steps that have been taken and may be taken to prevent the wastage of that material at every stage of its production up to the education period, and to prepare it so that it may prove strong and yet pliable under educational manipulation. He shows how mothers, the source of the raw material, who are now cut off in child-bearing or reduced to sterility by puerperal fever or accidents and diseases of various kinds, may by care and supervision be saved and kept alive and enabled to contribute further to it. He shows how, by ante-natal precautions provided by maternity centres, lying-in hospitals, hygienic instruction, timely medical advice and skilled nursing, the number of still and immature births may be greatly diminished, while taints that might vitiate a lifetime are eliminated or attenuated, the raw material of education being thus augmented or cleansed. He shows how by the amelioration of sanitary and social surroundings, and by the wholesome regulation of the home, infant mortality may be brought down from the high rate at which it stood only a few years ago, and still stands in certain districts, while infant viability is fortified against the dangers that beset it, again with notable advantage to our supply of educational raw material.

The fact is that we have been squandering our young lives with shameless prodigality and permitting their contamination with reckless negligence, and that the time has come when we have awakened to a sense of our imperative duty if we would hold our own in the world-war, which will always go on under one form or another, to safeguard our young citizens and their mothers. Education is the discipline that prepares for the struggle, but an indispensable preliminary of education is healthy motherhood and infant welfare.

To the importance of healthy motherhood and infant welfare and of healthy childhood while education is going on the country is now alive, but between infancy and education there is a period extending from the end of the first to the beginning of the fifth year that has hitherto received scant consideration. It has been a sort of "no man's land," lying between the frontier of the baby worker and that of the school medical officer, but both of these have now discovered its existence and significance in relation to their functions and are extending their influence over it. It is peculiarly the mother's domain, and the homing era, but a glance at the figures of the mortality of the children passing through it satisfies that these children are in need of sanitary protection not less than babies and children of school age. The baby-workers have found that their little charges at the end of the first year, when they are expected to take leave of them, are still in many cases far short of their proper health standard and urgently in need of skilled care; and school medical officers have found that of the children presented to them on admission to school large numbers are not normal, but stunted in growth, badly nourished, with decayed teeth, adenoids, and a multiplicity of ailments that might have been and should have been prevented. The "ex-baby" in many instances brings with it, even out of a well-tended babyhood, infirmities that grow upon and cripple it in after life, and during its passage through childhood it is exposed to incessant risks from infectious diseases, measles, whooping-cough, scarlet fever, diarrhœa and tuberculosis, and other crippling maladies, such as rickets, convulsions and rheumatism. The maternal instincts of the mother are not adequate to guide her child safely through this danger zone, and her circumstances frequently preclude her from giving the care, supervision and sustenance that are demanded if health is to be maintained, so that financial aid in certain cases, and instruction in mothercraft, health-visitation and medical consultations in almost all cases, must be provided if the young citizen is to enter school fit to profit by the teaching it affords.

This early childhood period has been regarded as outside the education area, but as a matter of fact it is the most momentous epoch in the child's educational development evenwhen no formal education is attempted during it. It is what may be called the instillation period of education, when the child is without conscious effort absorbing, drop by drop, that knowledge of the material universe that is at the root of wisdom and efficiency, and is contracting those tendencies that converge in character and largely determine its future career for weal or woe. It is of paramount importance, therefore, that the receptivity of the young citizen should through this epoch be maintained unimpaired, and that can only be done by keeping him in sound health and protecting him against disabling disease. Hence the high importance of a manual such as that which Dr. Porter has prepared, which furnishes to intelligent mothers, to health authorities, and all engaged in infant welfare work, in a succinct form, sound advice on all that concerns the righteous rearing of the young citizen.

Dr. Porter's survey is confined to the infant and young child, but much of his teaching is applicable to all stages of growth, and of especial interest at this moment is what he says on the subject of nutrition. Suitable and sufficient aliment is as necessary for schoolboys and schoolgirls in all the standards as for the infant at the breast. They will not less surely, if less rapidly, suffer from any food deficiency, and what we have to insist on is that those advances in education which are proposed and which we all hail with satisfaction and hope, are not secured at any sacrifice of nutriment or of that industrial activity on which food supplies depend. Intelligence and character do not thrive on impoverished blood or an empty stomach.

"Future Wellingtons and Nelsons," our educational enthusiasts tell us, "are drifting every day into dead-end occupations. Shakespeare hangs on the back of a van and Stephenson is a lift-boy." Now these potential celebrities may be safely trusted, under the impulse of their genius, if left alone, to work their way up to their proper and predestined sphere, but if they

be dragged out of their humble employments and sent hungry to school, without compensation for the food which their earnings procured for them, then it is more than likely that they will prove blighted beings.

The half-time system in factories and workshops is now to be abolished, and no one will regret its disappearance from the scene; but it is to be borne in mind that that system, when it was introduced in 1844, and when it was strongly advocated by the benevolent man who founded the Trust to which we owe Dr. Porter's lectures, was an immense advance on the state of matters that preceded it, and was an inestimable boon and blessing to multitudes of children employed in textile factories. It gave great relief from grinding toil and secured a modicum of education and a modicum of food when neither modicum would have been of much avail without the other.

There has been a skilfully-conducted propaganda, and the country is to some extent under an educational obsession. It is a generous and patriotic obsession, but, like most obsessions, it may be carried too far, and it is, I think, ground for congratulation that along with the Education Bill we are to have a Bill for the creation of a Ministry of Health. That Ministry, besides the many other benefits it will confer on the community, will supply a counterpoise to excessive educational zeal. It will, it is to be hoped, be entrusted with the health guardianship not only of mothers and infants, but of schoolchildren of all classes during school age. The teachers in elementary schools have shown themselves keenly appreciative of medical assistance and support in their work. The protection of the health of schoolchildren is not a thing apart, but is bound up with health administration generally.

Lord Rhondda, speaking recently, said that much more could be done for public health than had been done, were it not that so many different departments had a finger in the pie. "The proposed Health Ministry would obviate that difficulty. The Local Government Board and National Health Insurance should never have been separated from each other, and the sooner

they were brought together the better. The measure was an urgent War measure. Something like a thousand infant lives a week had been lost during the last three years through the maladministration of the health services of the country, and the health of the remaining children was not what it should be. There was something like a million defective children in our day schools. One of the functions of the Ministry of Health would be to see that every town had a maternity centre and clinic and that the whole industrial population was provided with a great nursing service." Let us hope that another of its functions will be to see that our whole ex-baby and school population is kept under medical inspection and is purged as far as may be of the perilous stuff that now thins, infects and blemishes it to so grievous an extent.

Perhaps at the moment we cannot expect a Ministry of Health, fully equipped and invested with powers sufficient to enable it to cope with all the ills that flesh, young and old, is heir to, but if we can make a beginning by abolishing cross-purposes and co-ordinating under one centre existing agencies, we shall speedily achieve results so unmistakable and beneficial that whatever additional jurisdiction is wanted will be readily conceded. One of the dangers bequeathed to us by the War will undoubtedly be the growth of bureaucracy and an increased and vexatious interference with the private affairs of life, but in relation to the Ministry of Health this need not be dreaded, for every obligation or restriction it imposes will mean an enlargement of personal liberty and emancipation from some of the fetters of weakness and distemper. There is no tyranny like that of disease. Democracy demands a sanitary basis.

It is for our Ministry of Health and our new education authorities to start in cordial co-operation to provide for us these munitions of peace which we shall so urgently need in the shape of young citizens, whole and vigorous, and with improved chances of life. Dr. Porter's Lectures will be a useful guide to all engaged in the production of such vital munitions.

JAMES CRICHTON-BROWNE.

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NOTE.—*The majority of these Tables are reproduced with the permission of the Controller of His Majesty's Stationery Office, from reports on Maternity and Child Welfare, etc., submitted to the Local Government Board by the medical officer to the Board, Sir Arthur Newsholme, K.C.B., M.D.*

THE FUTURE CITIZEN
AND HIS MOTHER

I

INTRODUCTORY

INFANT WELFARE WORK AND THE WAR.—Work on behalf of the citizens of the future—the so-called "Maternity and Child Welfare Work" which health authorities and others are now urged to organise on the ground that it is a matter of national importance—is one of the many things that owe their recognition as national work to the war.

Owing its recognition, however, it owes very little more. So far as beginnings are concerned, these were made long before the war, long before there was any thought of war in the mind of the general public. As a matter of fact, the number of districts in which infant welfare, the welfare of the future citizen, has not received special attention during the last ten or a dozen years is the exception. In many, indeed, the recognition that something more than the efforts put forth on behalf of the public health generally were necessary to obtain benefits for the babies of

the community came earlier, and schemes initiated then have gone on steadily widening until infant health work has grown into a very large and distinct branch of hygiene.

The Beginnings of Infant Welfare Work.—It was apparently first about the middle 'nineties that attention was directed to the need, and it was in the larger districts where there was some enthusiasm for public health, where there were energetic and skilled officers and money to pay for special works, that the first efforts were made.

The large additions to the list of districts concerning themselves with the health and life of baby citizens were made round about 1906. Since that date further districts have come in; new lines of work have been opened up and big advances made.

Bigger developments were due to occur just about the time the war broke out, and possibly would have occurred, even if war had not come and the nation had not discovered for itself that man-power counted and that in the past there had been serious neglect in the matter of providing and preserving man-power.

Declining Birth-Rates.—The voices that for years had been calling out that there was a shortage in the numbers added year by year and a great and unnecessary and preventable wastage on the man-power produced were at last beginning to make themselves heard.

There was evidence that those who went about giving facts and figures and showing tables such as are printed here were producing an effect.

Sections of the nation at least were coming to

realise that perhaps it was serious from the national point of view that there should be a steady reduction of 2 or 3 per 1,000 in the number of births every five years.

They were startled to discover that during the

TABLE I.—*The Falling Birth-Rate.*

Year.	Birth Rate per 1,000 Living.	Reduction per 1,000.
1876 . .	36·3	—
1887 . .	30·7	5·6
1907 . .	26·5	4·2
1909 . .	25·8	·7
1910 . .	25·1	·7
1911 . .	24·4	·7
1912 . .	23·8	·6
1913 . .	23·9	(increase ·1 per 1,000)
1914 . .	23·8	·1

This table shows the birth-rate of England and Wales. Practically every district has shared in the reduction, and for years reports by local medical officers of health have contained references to the fall in the number of births and have chronicled year by year "the lowest birth-rate on record."

last forty years there had been a drop of between 30 and 40 per cent. in the birth-rate; surprised to learn that if the birth-rate in, say, 1914 had been 36·3 as in 1876, instead of 23·8, not 878,882, but 1,346,719 babies would have been born.

Many were more impressed still with the facts brought out by the census enumerations, which

revealed, as indicated below, that every ten years the population, instead of showing a steadily rising percentage increase, remained always more or less at the same figure.

TABLE II.

Years.	England and Wales.	United Kingdom.	German Empire.	Belgium.	France.
1881–1891 .	11·7	8·2	9·3	9·9	1·8
1891–1901 .	12·2	9·9	14·0	10·6	1·6
1901–1911 .	10·9	9·1	15·2	10·9	1·6

This Table shows the percentage increase of populations between census enumerations. Great Britain and her Allies show little or no advance: Germany considerable increases.

The disturbing thoughts induced in the minds of those at all influenced by these figures were all the more disturbing when comparison of the returns for this country was made with those of the nations who were, even before the war, regarded as certain friends, and with those of the nation always considered as at least a potential enemy.

The situation in France was, of course, notorious. Practically every one knew that for years the number of births, speaking broadly, was trivial, and no one was much surprised to note that the increase of population, so far as she was concerned, was small and stationary census by census. It was a painful surprise to learn that here at home it was more or less stationary too, while the population of Germany was always higher and always on the up grade.

INFANTILE MORTALITY RATES.—Numerous as were those who were moved to think by these figures,

there were still numbers on whom they produced no effect. Amongst them were the individuals who regarded patriotism in peace time as out of place and comparisons as likely to be odious to the Germans; or who considered that Britain was so great that, population or no population, there were none to assail her.

Even for such as they, however, matter to serve as food for thought was not lacking. It lay in the figures with regard to wastage, and is contained in the chart shown on p. 7. The figures there given are what are known as the "Infantile Mortality Rates" for a number of years—this rate representing the number of babies who die in any year, before reaching the age of twelve months, out of every 1,000 born in that year. The highest figure reached, it will be noted, is 158, and the lowest 95. It may be noted, too, that these rates are for the whole country, and that in many districts a figure so low and in many others a figure so high as that of the country is never reached.

This is a matter more fully dealt with in the chapters relating to infancy, and the figures and facts are only mentioned now with the object of showing the extent of the wastage suffered and the amount of man-power lost to the nation.

As with the figures with regard to the birth-rate, so here, however, it was not the effect on man-power that made the appeal. It was not, in short, patriotism that was awakened, but pity—pity that so many babies should be born only to find an early death or a life of disablement awaiting them.

As a matter of fact, at the beginning, they,

experts and enthusiastics mainly, who were anxious to see action taken used the infantile mortality and wastage figures exclusively in support of their case. Bad as they were, they seemed less hopeless than the figures relating to shortage of births.

The state of affairs once recognised, it was possible almost at once to begin to do something to stop wastage. Shortage was quite another matter, for, though it might be difficult enough to induce and help people to try to keep their babies alive and healthy, it was obviously infinitely more difficult to find a way to induce them to have larger families, or even any family at all. The problem was too delicate and complicated altogether. And so there was concentration on the wastage problem. Methods were devised and schemes adopted whereby all or as many as possible of the babies born were to be saved ; which had for their aim a death-rate so low that it would counter-balance the diminished birth-rate.

In the chapters that follow, and particularly in that relating to the baby, it is proposed to give some details with regard to the schemes and methods. At the moment all that need be said in respect of them is that where they were tried some fairly good results were obtained : some babies who might have died were saved ; some babies who might have been badly damaged in health by adverse conditions and surroundings were put on the right road to becoming healthy and useful members of the community.

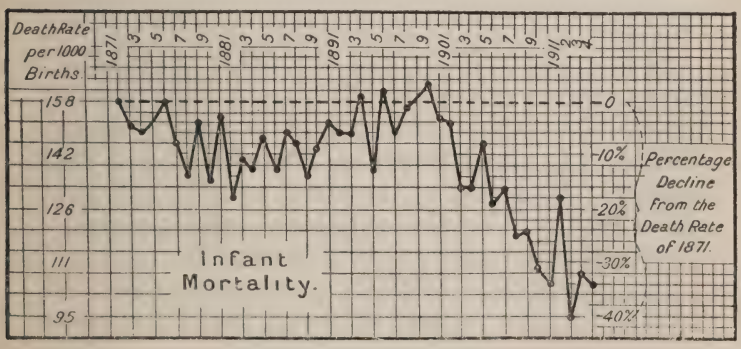
Generally speaking, the results were good enough to encourage those who put the methods into operation to persevere with them, and to justify

the conclusion that, provided the national conditions did not change, they were worth following out.

But it was only if national conditions did not change that they could be regarded as anything like satisfactory.

When the war commenced and went on and showed signs of keeping on—when long lists of casualties began to appear and kept on getting longer and longer; when the call for men became more and more insistent—then came doubts as to the completeness of the schemes and the adequacy of the methods. When man-power and more man-power is wanted to replace man-power that is destroyed; when every day shows that man-power is required not only to gain, but to hold what has been gained and to get the benefit of it, there is little enough satisfaction to be obtained from contemplation of a return which shows, as does that set out below, that all the schemes and all the efforts, direct and

TABLE III.—*Reduction in Rate of Infant Mortality per* 1,000 *Births in England and Wales*, 1871–1914.



indirect, have taken forty-three years to produce a reduction of about 30 per cent.

Though it is possible to declare that in the period named the decline has been such that instead of losing 158 babies out of every 1,000 born only something over 100 are lost, there is not sufficient justification for saying that enough has been done and further action is unnecessary.

More especially is this the case when the full meaning of the next little table is grasped—viz., that, on an average, out of every 100 babies born only something like 84 still survive at the end of the fifth year, and that these 84 have all the risks of childhood still to face before they can be counted part of the nation's man-power.

TABLE IV.—*Out of* 100 *Children born alive there survive :*

—	In London.	In County Boroughs.	In Rural Districts.	In England and Wales.
At end of 1st year .	89	88	91	89
„ „ 2nd „ .	86	84	89	86
„ „ 5th „ .	84	81	88	84

In the light of these figures, indeed, practically all that can be said of the results is that if they can be maintained there is a possibility of keeping things going on the reduced number of births. As to the methods, the extent of the claim must be that, so far as they go, they are fairly satisfactory and their continued application is worth while.

Still permitting so much wastage to occur, it obviously cannot be said of them that if they are

persevered with they will bring in enough man-power for all the purposes of war or peace or get over the root trouble that whereas over 1,000,000 babies should be provided every year, as a matter of fact only some 700,000 or 800,000 are forthcoming.

With regard to the methods also it may be said that, though occasionally gratification is expressed by those who devised and who carry them out, very rarely do they claim that they are sufficient to meet the situation, and that, provided they are properly applied, the matter of the reduced birth-rate need give rise to no further anxiety.

On the contrary, it is they who most frequently and loudly proclaim the need for an increase in the number of births—who most ardently search for the reasons underlying the shortage and for methods of meeting them.

One of the few satisfactory and promising methods so far evolved is that that has led to talk of *Maternity and Child Welfare Schemes* in place of what were formerly called *Infant Welfare Schemes* or *Schemes for the Prevention of Infantile Mortality*, for the reason that all the effort was on behalf of the babies.

Under these schemes, though at least as much as was formerly done for the infants is still to be done, the work is not to stop short at infancy. Care and attention are to be given to the child who, having gone beyond the first twelve months, has ceased to be what is commonly called an infant. More important still, there is to be recognition of the fact that the mothers need care and attention too, the mother being an asset of the nation on her own account as well as that of her baby.

In the pages that follow it is proposed to give some details and some idea of the working of maternity and child welfare schemes. In the first place it is proposed to refer to what is and may or should be done on behalf of mothers and motherhood, referring later to the infant and young child.

II

THE CARE OF MOTHERHOOD

WELFARE OF THE MOTHER.—Though *schemes of infant care* have been in operation for a number of years in the majority of districts, it is only quite recently that the view that the mother has some claim also has been accepted—only now, when the need is great and pressing, that motherhood and all that it stands for is recognised as worthy of serious and special attention.

To some extent this has come about because of a real desire to help the mothers, and as a result of a recognition of the fact that the women who are willing to undertake the risks and responsibilities of motherhood have a claim upon the nation.

In the beginning it was not entirely because the mother required help that there was talk of schemes to cover motherhood: mainly it was because experience had shown that those relating to infant welfare were not likely to be completely successful unless and until the whole period of babyhood, that preceding birth, the ante-natal period, as it is called, as well as that following it was covered. It was seen that the baby who did not flourish, who died soon after he was born, quite commonly received the blow that killed him before birth, and that the only way to safeguard him was through the mother.

If the mother is to be helped, therefore, it is just as much on her baby's account as on her own. That this is so is no reason for fearing that any assistance rendered will be any the less readily accepted by the mother.

On the contrary, it is likely to be all the more readily received, since the view held by the majority of expectant mothers is that the better the health they enjoy, the more they do to preserve and improve that health, the better is it likely to be for the unborn baby.

Despite the fact that there are some authorities who claim that weakness in the mother makes little or no difference to the health and strength of the child she carries, and point to the quite numerous cases in which poorly nourished and weakly women have given birth to and have reared strong, sturdy children, most people do not willingly accept this claim.

Indeed, the contrary view is ordinarily taken. It is held that on all grounds it is better for a baby to be borne by a strong, healthy mother, and no proof that could be brought forward would ever be sufficient to weaken the desire now so widely felt that nothing that can be done to benefit the nation's mothers should be omitted.

Even if maternity schemes were not absolutely necessary as part of infant welfare schemes, it seems certain that they must and would be gone on with.

Risks to the Mother and Baby.—Easy enough as it is to give examples to show that a healthy baby need not of necessity have come from a healthy mother, and difficult as it may be to prove that

health in the mother is certain to ensure health in the baby, it is a simple task to produce evidence that conditions and circumstances that lead to interference with the well-being of mothers, that expose them to risks during the period of expectancy and at the confinement, do interfere with the life and health chances of the baby also.

Such evidence is contained in the following tables in which comparisons are made between the number of deaths of mothers in childbirth and of babies before or at birth and very soon after.

In the first of the tables, which gives side by side the death-rate amongst mothers from child-bearing and the number of babies born dead per 1,000 registered births in a number of districts, there is shown a clear correspondence between the figures.

TABLE V.

District.	Total Death-Rate from Child-bearing per 1,000 registered Births.	Number of Still-Births per 1,000 registered Births.
Rochdale . .	7·21	56·1
Burnley. . .	6·57	50·3
Swansea . .	5·08	46·4
Sheffield . .	4·05	44·0
Nottingham . .	3·79	23·0
Liverpool . .	3·61	18·3
Southampton. .	3·30	16·3

From the table the obvious and only conclusion is that where there is a high risk for mothers and a

high child-bed death-rate, there also is there a high rate for the babies. The figures at the head of the columns for Rochdale, Burnley, and Swansea bring this out particularly well.

That the baby's chance of life improves with the mother's chance of passing safely through the strain of child-bearing is shown particularly in the figures at the end of the table, which are those for Nottingham, Liverpool, and Swansea.

This fact is even more distinctly to be noted in the next series of figures, comparing in another set of towns the number of deaths of mothers with the number of babies dying in less than a week after birth. There it is shown that as matters improve for the mother, so also do they improve for the baby that is born alive. In other words, support is given to the view that the same circumstances that make it easy or difficult for the mother to bear her child and live go to make it possible or impossible for the child that is born alive to retain its hold on life.

TABLE VI.

District.	Maternal Death-Rate from Child-bearing per 1,000 Births.	Infant Death-Rate under One Week per 1,000 Births.
Dewsbury . .	8·54	41·4
Barnsley . .	5·81	31·2
Gateshead . .	4·42	30·0
Southend . .	3·73	21·9
Brighton . .	3·12	21·2
Hastings . .	2·51	19·8

The towns that have been chosen for the purpose of illustrating the points raised, it should be noted, have not been taken with any other object than that they are representative of a certain class of district—industrial, coal-mining, residential, etc. As a matter of fact, practically in every town there are areas where results just as bad as those shown by the worst of the towns and just as good as those in the best of the towns named are obtained.

It is not necessary, however, to particularise or produce further figures. Enough has been said to support the views expressed and to justify the very moderate belief that anything done to lessen the risks for the mother will be of considerable assistance to the baby also.

THE TOLL OF CHILD-BEARING.—That there is at least justification for doing something for the mothers, and that child-bearing is attended by appreciable risks, is very clearly brought out by the figures shown. In Dewsbury, for example, nearly nine, and in Rochdale about eight, mothers die for every 1,000 babies born alive. Even in the best towns—Southampton, Hastings, etc.—the risk is something like 3 or 4 per 1,000.

These figures, however, do not tell the whole story. That women may and do indeed die in giving birth to children is, of course, generally known. One of the most terrible of the fears that keep the expectant father company during the horrible ages he passes through waiting for the news that takes so long to come from the lying-in chamber is that the woman may not get through the trial in safety.

But how many people know the average death figure in these cases; how many expectant fathers would place it so low, and how many of the general run of people so high as round about 4 for every 1,000 births?

How many would agree that in England, on an average throughout every year, one woman lays down her life for every 250 children that begin their life?

The following table shows what has been happening in this connection year by year since 1907. In the years prior to 1907, as a matter of fact, conditions were rather worse, since there occurred, on an average, the death of one mother to every 228 births.

TABLE VII.—*The Toll of Child-bearing*, 1907–1914.

In 1907	one mother	died to every	261	births.
1908	,,	,,	280	,,
1909	,,	,,	271	,,
1910	,,	,,	281	,,
1911	,,	,,	272	,,
1912	,,	,,	265	,,
1913	,,	,,	270	,,
1914	,,	,,	253	,,

Saving the Mothers.—These figures are considerable, much too considerable, but, large as they are and sad as they are, there is that behind them that gives room for hope. It is this—that in many cases the cause that led to the death of the women who laid down their lives can be classed as preventable. Being preventable, it almost follows that, provided proper means of dealing with them are devised and adopted, many of the risks can be overcome and many lives saved.

Even more important still, health will be protected too, and large numbers of women spared years of suffering and chronic invalidism and permanent or temporary sterility.

The extent of the suffering that arises from exposure to risks during confinement cannot be measured by figures as the deaths can—cannot be estimated from the death figures already given, cannot even be conveyed in mere words. It is true and safe to say, however, that if one mother dies for every 250 babies born, for the same number of babies born there are very many mothers condemned to suffer pain and ill-health to a greater or less degree and for a shorter or longer time.

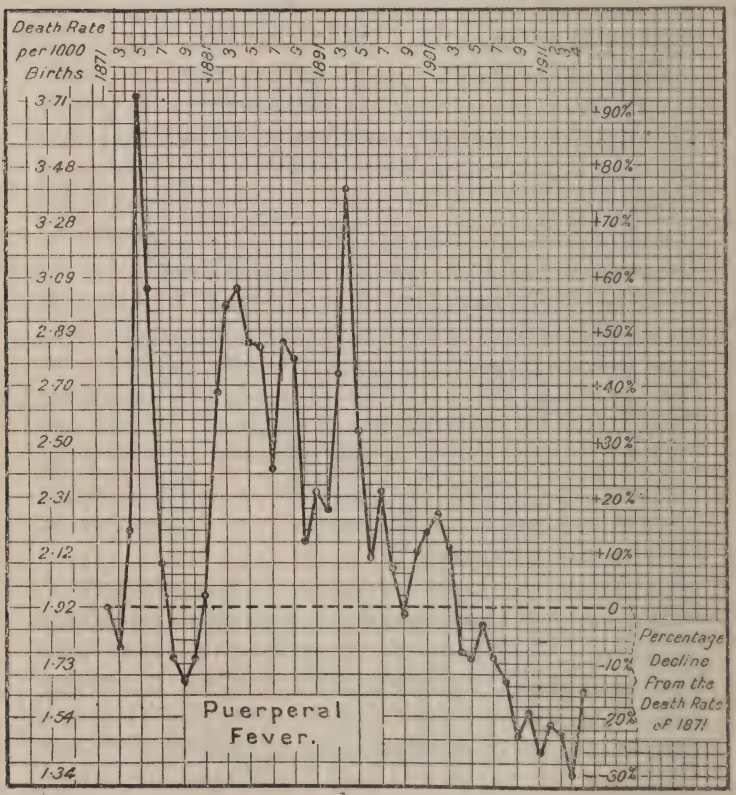
It is a grievous thing that this should be so. It is equally grievous that a very large proportion of the women should, surviving and suffering by reason of something that might be prevented, be incapable thereafter of bearing more children. From the point of view of the family and the race, it is so serious that alone, at these times particularly, it might be sufficient to compel the institution of preventive measures.

Causes of Death, Suffering, and Sterility.—To show that the causes leading to these results are preventable, it is necessary to do little more than mention that the two heads under which the deaths are classified are—(1) Child-bed Fever, or, to give it its proper name, Puerperal Fever, and (2) Accidents of Birth, and to say that of all preventable conditions, fevers and accidents are the most preventable.

Child-bed Fever.—The extent of the responsibility of puerperal fever for deaths in child-bed is shown

in the following chart, which indicates also the variations that have occurred in the years 1871–1914.

TABLE VIII.—*Death-Rate per* 1,000 *Births from Puerperal Fever,* 1871–1914.



That, though there have been extraordinary variations, there has been on the whole a considerable

fall in the death-rate during the last thirty or forty years will be noted. It will be seen, too, that since about 1910 the fall has been fairly continuous and that, at the moment, the figure is somewhere about 2 (1·6) deaths per 1,000 births, as against nearly 4 per 1,000 in 1893. Considerable as the improvement is, however, it should be remembered that puerperal fever, being due to infection, is one of those diseases which are regarded as preventable and capable of control. It cannot be said, therefore, that the curve shown in the chart marks any great triumph, or as much of an improvement as might have been expected.

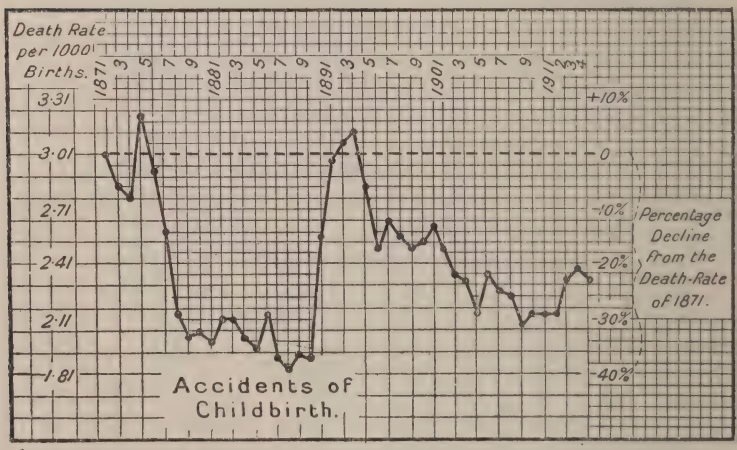
Commenting upon it Sir Arthur Newsholme, Principal Medical Officer of the Local Government Board, from one of whose reports it is reproduced, says: "It may be regarded as *highly unsatisfactory* that for every 644 infants born one woman lost her life from puerperal infection either present before the birth of the infant, or more often acquired during or soon after its birth."

Accidental Deaths.—Even more unsatisfactory is it that women should lose their lives on account of accidents at childbirth and from diseases of pregnancy.

Amongst the conditions classed as accidents are abortion, hæmorrhage or bleeding during pregnancy or labour, uncontrollable vomiting, disease of the kidney, and diseases of the breast, the causes of which are no more difficult to control than that underlying a very large percentage of the cases of puerperal infection, viz., failure on somebody's part to exercise care in regard to cleanliness. Yet, as the

chart shows, the proportion of maternal deaths to live births is, all round, higher in the case of accidents than in the case of puerperal fever, and even at present remains at a higher level.

TABLE IX.—*Annual Death-Rate per* 1,000 *Births from Accidents and Diseases of Pregnancy and Childbirth, other than Puerperal Fever,* 1871–1914.



Prevention.—The measures that are regarded as suitable for the prevention of the occurrence of the puerperal fever and the accidents, and of the deaths and of the sterility and the suffering they cause, are care and supervision for the mother during pregnancy (*ante-natal care*) and skilled attendance under satisfactory conditions at and after the birth of the child.

Fuller details with regard to these measures and the method of carrying them into effect will be

given later. In the meantime it may be noted with regard to them that if they are likely to be successful in connection with the prevention of puerperal fever, still more are they likely to succeed in preventing the accidents of childbirth, which, being almost less inevitable, are even more to be deplored.

London's Experience.—The conclusion that the provision of adequate ante-natal care and skilled attendance under satisfactory conditions at and after birth will lead to improvement is based largely on the experience in London. Here it can be shown that, so far at least as accidents of childbirth are concerned, the death-rate is nearly 70 per cent. lower than in other counties and in the county boroughs throughout the country.

It is pointed out, too, that if the rate throughout England had been even as low as that of the metropolis during the years 1911–1914, nearly 4,000 lives of mothers would have been saved.

The favourable position occupied by London in this connection is held to be due to the fact that, generally speaking, medical assistance is better, or at any rate more readily secured, than elsewhere.

Whatever more is done, therefore—and much more is necessary in the interests not only of the mothers, but of the unborn babies—the necessity for securing that at the time of lying-in, every mother has such medical assistance through doctors and nurses as is required, is clearly very great.

Medical Assistance.—Theoretically, and even practically, in a country like this there should be no difficulty in making full and proper arrangements. Persons capable of giving the necessary medical

and nursing care, in most areas, are not too far to seek.

For those who can afford to pay for the assistance there is the doctor or the midwife or both. As the law now stands neither the doctor nor the midwife may accept pay for giving assistance unless they are qualified; a midwife may not, indeed, attempt to practise unless she is registered, and will not be registered unless she is qualified. Further, to insure that there shall be more skilled treatment if difficulties arise, a midwife, if she is attending a case alone, must immediately send for a doctor on the appearance in the patient of certain signs which her training and experience should enable her to detect quite readily. These provisions with regard to midwives are contained in the *Midwives Act*, a measure that has been in force since 1902 and has led to a complete revolution in connection with midwifery as practised by others than persons holding medical qualifications. The type of woman calling herself "midwife" has been entirely changed by the requirements as to registration and qualifications; and by requiring implicit obedience on the part of the midwife of rules they have laid down, a special body, known as the *Central Midwives Board*, tries to assure to the patient who engages a registered midwife treatment of the very highest class at her labour and throughout her confinement.

For the payment of any fee to a doctor called in in emergency by the midwife the patient's friends are primarily responsible, and possibly the 30*s*. maternity grant under the Insurance Act was expected to go towards paying or helping to pay it,

though it is totally inadequate to meet this and the hundred and one other needs that arise at the time of lying-in.

If the people cannot pay, under an Order of the Local Government Board it is now within the power of the district council, or local authority as it is generally called in this connection, to bear the cost. The authority may indeed retain a doctor or doctors to be called in in such cases and pay the fees themselves.

Apart from arranging for the services of a medical practitioner, the authority may provide also the services of a midwife, either free of charge to persons quite unable to pay a fee, or at a reduced fee if they can only pay a little.

In these cases the midwife may be paid a salary, or she may simply be retained by the council, who make up the full fee to her, if she receives only part of the amount from the patient, or give her the whole fee if the people are too poor to pay anything.

In any case, part of the expenditure is made a *national charge*, the Government giving back to the authority half of what they spend in this way. The remaining half is, of course, a local charge and comes out of the rates.

Lying-in Hospitals.—The provisions that the authority may make on behalf of the mother do not end here. In order to meet the case of the woman who is too ill to be properly attended to at home, or whose home is insanitary or otherwise unsuitable, they may themselves establish a lying-in hospital or contribute to a voluntary hospital for the right to use beds there for selected cases.

In the case of this provision, as in the others, only half of the expenditure is met out of the rates, the Government recognising that the need is a national and not merely a local one.

All these things are quite recent innovations and mark a most tremendous advance so far as the country as a whole is concerned. Recent as they are, however, it is splendid evidence of the recognition of the need, and of the willingness of local authorities to meet it, that many councils have already and without hesitation made the provisions suggested, spending large sums of money out of the rates for the purpose.

The measures are calculated to be, and will no doubt prove, greatly to the advantage of the less well situated mothers. Doubtless, also, one of the results will be a reduction in the number of deaths from puerperal fever and accidents of childbirth. The babies will advantage too, however, and some at least of the deaths, that, as will be shown later, are apt to follow damage done at or soon after birth, may be prevented.

The Expectant Mother.—Some of the still-births may also be prevented; but, so far as these are concerned, arrangements more expressly affecting the expectant mother, and now to be described, are likely to prove more effective.

Maternity Centres.—Such arrangements may be made either by a council or by a voluntary body such as what is called a "Health Society." Their design is to attempt to get into touch with the expectant mother of any, but particularly the poorer, class as early as possible; to see that her health and sur-

roundings are attended to, and treatment provided if necessary, and that she has such help and guidance as she may require before the birth of the child.

The results it is hoped to bring about are a reduction in the risks of complications at the time of the birth of the child and improvement in the life and health chance of the baby.

The crux of the whole of this part of the maternity and child welfare scheme is the finding of an opening through which to get and keep in touch with the expectant mother.

After the birth of the child it is comparatively easy to reach the mother, the fact of the arrival of the baby having been announced as a result of notification and registration of the birth.*

Before the birth occurs there is nothing like these things, and getting into touch can only be brought about voluntarily through the mother herself or through the midwife or doctor engaged to attend at the time of birth.

When touch has been obtained—and in many districts mothers, midwives, and doctors have shown themselves not averse to bringing it about—particular effort is made with the object of removing

* Notification under the *Notification of Births Act* must be made to the Medical Officer of Health of the district *within thirty-six hours* of the occurrence of the birth of a child, alive or dead, which has issued forth from its mother after the twenty-eighth week of pregnancy; by (*a*) the father of the child if actually residing in the house at the time of the birth, or (*b*) any person in attendance on the mother at the time of or within six hours of the birth. This notification is in addition to, and not in substitution for, registration of births, which must be carried out at a registry office within forty-two days (in Scotland twenty-one days) of birth.

factors in the surroundings adverse to the health of the expectant mother and the expected baby and of securing that the birth shall take place under conditions favourable to the health and safety of both.

Work in the Home.—The work to be done lies very largely in the home of the mother; and the person who is in touch with her, if the best possible results are to follow, must be one who has some knowledge of what kind of things in the home are likely to be dangerous and who is able, at the same time, to put into operation machinery capable of removing the dangers.

One also is wanted who is qualified to advise the woman in a commonsense kind of way on health matters generally, but more particularly on such as affect the health of the expectant mother herself.

Further, the individual chosen should be capable of getting so much of the confidence of the woman that she will talk freely of herself, and not conceal, as a woman is so apt to do, signs and symptoms that should be brought to the notice of a doctor.

In the general view the kind of person best suited for work of this sort is some one belonging to or closely linked up with the health department of the local authority, for the reason that such a one will be able to detect and get remedied possible sanitary defects in the home or its surroundings.

A woman must of course be chosen, and of necessity she must have some knowledge of and training and experience in maternity and child welfare work —enough, at least, to enable her to talk with confidence and authority of the things that it is well for

a woman to do or to avoid doing in her own and her baby's interest.

It is most important also that the worker should be one who has the confidence of the doctor and the midwife whose patient the woman is, since to them reference must be made, if anything should arise in connection with the mother while carrying the child, to which they should give attention.

Lastly, it is essential that any one working on behalf of expectant mothers should be in touch with all the philanthropic and charitable bodies in the district, in order to be able to put necessitous cases in the way of obtaining assistance.

Women qualified in all the respects named and possessing all the attributes necessary are not impossible to find. As a matter of fact, there are already many who have prepared themselves specially for such work, and there are many others who are qualifying themselves now. Doubtless larger and larger numbers will be required year by year as schemes are inaugurated and developed. It is on them that the success or failure of the scheme will largely depend, and the signs at the moment are that they will not be found wanting.

Ante-natal Centres.—In addition to work done individually in the home of the expectant mother there is much that can and should be done outside it, and this has led to the establishment of what are called *Ante-natal Centres or Clinics.*

These are, to some extent, medical institutions, and to a very great extent teaching institutions.

The Medical Side.—So far as the medical side is concerned they may be, and in some places are,

established at hospitals in or from which the woman is to be or may be attended at the time of her confinement.

In other places the hospital and the ante-natal centre are distinct, and at the best of these there is, as there should be, a doctor, frequently, if not usually, a woman doctor, who takes responsibility for the medical side of the work, and along with the woman's own doctor or midwife finds out if there is any matter calling for attention in any case and sees that attention is given ; and in this connection it may be said that, if the work of the centre is to be successful and give the best results, there must be sympathetic co-operation as between it and the private doctors and midwives. Every effort should be, and is generally, made to obtain this. Midwives particularly are most cordially invited to make any use they care or can of the institution, and in many districts the invitation has been accepted and co-operation is becoming more and more perfect.

So far as the condition of the woman is concerned, in most instances, of course, there is nothing that can be called serious. In the majority, however, even though the pregnancy is, as it should be, perfectly normal and natural, there are a number of small matters—carelessness in connection with food, bad digestion, bad teeth, and such like—that, if neglected, interfere with the health, well-being, and comfort of the mother and through her of the baby.

It is in respect of such things, mainly the outcome usually of neglect of the elementary rules of personal hygiene, that good can be done on the medical side of the centre. It must not be overlooked, however,

that as a result of observations and examinations really serious disorders may be detected and got rid of by putting the woman under treatment by her doctor or in hospital.

Amongst the conditions that may be brought to light in this way are kidney trouble, which, as already noted, is responsible for a large number of the deaths classed as accidents of childbirth. It is possible also to form an opinion, even to say definitely, whether or not the labour is likely to be perfectly normal (96 per cent. or so are) or complicated, and to advise in the latter case with regard to the preparations to be made and the assistance that may be required.

Of the value of these preliminary medical investigations there is absolutely no room for doubt, and in the interests of mother and child they should never be omitted. In the past they have been neglected to a great extent; even at present they are often neglected, the " booking " of the doctor or the midwife for the confinement being regarded as merely a formal matter and consisting largely of a calculation as to the approximate date of the birth. Sometimes there were questions as to general health; sometimes there were not. Occasionally hints were given as to the preparations that should be made: just as frequently nothing whatever was said. Commonly the expectant mother was glad there was no fuss and trouble: generally the doctor or midwife who refrained from investigation did so because it was recognised that the woman preferred that there should be as little discussion as possible.

All this was wrong, and largely it is because it is now recognised that it was wrong, and that lives

were needlessly lost—lives of mothers and baby lives—that maternity welfare schemes are being so strongly insisted upon, and that ante-natal clinics are being established where even the poorest expectant mother can receive advice and help similar to that provided for the most highly placed woman in a similar condition. In time it is hoped that all grades will enjoy such advantages, and that even those women who, being too well off, are just outside the sphere of influence of the ante-natal clinic and the hospital, and, being too poor, cannot obtain what have been regarded as refinements, will come to share them.

The desire to see the practice made uniform is an important reason for pressing forward with schemes.

If the woman attending the ante-natal centre is visited at her own home during the time she is in attendance there is no doubt that the amount of good done will be all the greater, since the visitor will be able to follow up and see if the advice given has been acted upon.

The Teaching Side.—As to the ante-natal centre as a teaching institution, there is, of course, no limit to what may be done in the way of giving instruction. Anything that may be useful to a mother, expectant or not, may be taught: cooking, for example, and sewing, giving particular attention in the case of the latter to the preparation of such articles as will be required by the new baby, and so on. There should be, also, a good deal of teaching of the simple health rules, and especially with regard to the choice of food, as to dieting and the arrangement of meals, indicating the necessity for as simple and nourishing

a diet as possible. In connection with the centre, or linked up with it, there should be, if it can be arranged for, a place where meals can be obtained by expectant and nursing mothers. At the moment there are certain legal difficulties in the way of local authorities themselves making such provision, but it is hoped that by Act of Parliament or otherwise powers enabling them to do so will be granted. Till then it will be necessary to depend on voluntary and philanthropic agencies for the carrying on of this most important and valuable work.

In dealing with food opportunity must be taken to refer to the necessity of avoiding alcohol in the period before the arrival of the child. No attempt should be made to erect a temperance platform at the centre, but as tactfully as possible, whenever opportunity offers, every effort should be made to destroy old-fashioned theories with regard to the necessity for resort to alcoholic beverages during the expectant and nursing period.

Facts with regard to the feeding of infants will naturally be taught also. Particularly, stress should be laid upon the advantages of the natural over all other methods, and upon the necessity of preparing for the taking up of that form of feeding when the baby arrives.

In connection with clothing there is often much ignorance and neglect on the part of the expectant mother, and instruction should certainly be given with regard to it and advice as to the choice and arrangement of garments

In any talks to the mother individually or in classes there will also be reference to the necessity of,

as far as possible, avoiding *over-exertion* in connection with work at home or outside it, or in relation to exercise. Amongst women of the working class this is particularly necessary ; at the same time, however, there must be no attempt to discourage the taking of some exercise or to lead the woman to believe that she is to regard herself as in any way an invalid.

Minor Ailments.—Most of the points referred to, it will be noted, are more or less matters of ordinary common sense, but, in addition to referring to these, it is important to give some description of the minor troubles and disabilities that may be suffered, and the reasons for their occurrence. Simple advice should also be given as to how best to prevent them and deal with them if they arise.

Advice as to Teeth.—In some instances even treatment may be provided, and this is particularly the case in regard to defects in connection with the teeth. These, as is well known, are very apt to go wrong during the period of expectancy, and it is important to impress the fact that good general health cannot be hoped for if the mouth and teeth are not in a sound and healthy condition.

It should be shown that toothache is not, as is generally believed, the only sign of decay of the teeth. Pains in the joints described as rheumatic, sore throat, stiffness in the neck, neuralgia, headaches, bloodlessness, and indigestion—all these are as frequent signs of disease of the teeth and gums as is an aching tooth or a swollen face or a gumboil.

Another important point that may be made is that it is not only the mother who suffers as a result of defective teeth. Before it is born the baby most

certainly suffers because the mother's condition is less good. Afterwards it may also suffer, since it has been shown that in quite a number of cases the failure of the breast milk was dependent to a great extent upon the bad condition of the mother's mouth.

Dental Clinics.—The teeth question is obviously, therefore, a very important one—so important, indeed, that it seems safe to say that no centre is properly carrying out its work unless the staff is in a position to see that any woman requiring dental treatment is put in the way of obtaining it. In many places, as a matter of fact, a dental clinic is definitely part of the scheme, and the getting of treatment for any woman means merely sending her on from one department of the centre to another.

Since the dental clinic that serves the mothers may also conveniently be used by the children, further reference to it is postponed until the part of the scheme affecting these is discussed.

Importance of instruction.—Much of the instruction under the heads noted above may, if necessary, be given in small classes, but it may also be impressed upon each woman individually by the doctor or the workers at the centre.

It should also be repeated in the homes where observations are made to see if the advice given is followed.

However the instruction is given, it should certainly be given. Whoever gives it should keep on giving it, and should see that the suggestions are carried out.

If the advice is followed, it will undoubtedly react favourably upon the mother and the child.

In the case of the mother, dangers that may appear at the time of the birth of the child may have been anticipated and guarded against or so modified that the results may be less serious. In the case of the child, as a result of the improvement in the health of the mother there is improvement in its chance and a reduction in the number of risks to be run at the time of and before and after birth as well.

Leaflets.—In connection with the work of spreading knowledge, in addition to class and individual teaching considerable use is also made of leaflets of advice. The following is introduced with the object mainly of showing the kind of information it is thought well to give to expectant mothers :—

TO THE EXPECTANT MOTHER.*

Take care of your Health.

If you want to be well while you are carrying your baby : if you want to get over your confinement well and quickly : if you want your baby to weigh about 7 pounds and be strong and healthy : You must live a quiet, regular and careful life.

Take Nourishing Food.

Your food must be plain, simple, nourishing, and as plentiful as possible. You should have meat at least once a day. Vegetables are good for you, and peas, beans and lentils are very nourishing.

Porridge, made with oatmeal, once a day will keep you from becoming costive. You are better without too much liquid food, such as soups.

A small nourishing meal is better than a big one.

* Leaflet published by Messrs. Shaw & Sons, Fetter Lane, London, E.C.

Do not take pickles or too much vinegar.

If you feel hungry at any special time in the day, take a meal then. If you have cravings for special kinds of food, ask your doctor if they would be good for you before you take them.

Take no Beer, Stout, or Spirits.

If you are thirsty, drink plenty of fresh water. At meal times take cocoa or milk. Too much tea or coffee is bad. Beer, stout and spirits should not be taken.

Take Plenty of Fresh Air.

Be out of doors as much as you can during the day. When indoors and at night see that the windows are kept open.

Take Care of your Skin.

If your skin acts properly you will feel all the better for it. Take a hot bath as often as you can, every day if you can manage it. See that you have a good hot bath before your confinement is due.

Take Care of your Breasts.

You will want to suckle your baby. It is good for you and best for the child. If you look after your health you will be able to do so. Wash the breasts and nipples every day. If your nipples are short and sunken gently rub them with lard or butter and draw them out.

Take Care of your Teeth.

If you suffer from toothache, it is because you have not taken care of your teeth. You should never neglect to brush them at bedtime. If they are decayed, or if your gums are sore, go to a well-qualified dentist, or a dental hospital. By caring for your teeth you will escape suffering from indigestion and prevent injury to your health and that of your baby.

Take Care to Dress Properly.

Wear light, warm, loose clothing. Have no tight bands round the waist : the shoulders, and not the hips, should carry the weight. Especially when working, a belt corset is useful as it gives support ; it should not be tight.

Take a Walk each Day.

Though you are expecting a baby you are not really an invalid. Take exercise every day in the fresh air ; walking is best, but do not overdo it. Do your work in the house, but do not lift heavy weights, such as wash-tubs, and do not strain yourself. In the later months drop all heavy work as far as possible.

Take Plenty of Sleep.

Go to bed early and get at least eight hours' sleep every night. Take a rest in the daytime by lying down for about an hour.

Take Medical Advice

If (1) You lose any blood or have a discharge or a sore ;
(2) You have toothache or headaches ;
(3) You suffer from indigestion or a great deal of sickness ;
(4) Your bowels do not act daily ;
(5) You pass less water than usual ;
(6) Your face or legs show signs of swelling ;
(7) You have varicose veins ;
(8) You seem to be particularly big.

ENGAGE YOUR DOCTOR OR MIDWIFE EARLY.

ANTE-NATAL WORK AND STILL-BIRTHS.

In New York it is claimed that as a result of ante-natal work the still-birth rate has been reduced by over 23 per cent. In this country it may be hoped

that in due course a reduction will follow if sufficient encouragement is given to those who desire to see ante-natal centres established and the work gone on with.

Some idea of the extent of the necessity for taking action has already been given in the table on p. 13, which shows that annually there are 25 to 30 dead births per 1,000 live births, though it is suggested that to every 1,000 babies born alive there are some 150 who for one reason or another die before birth takes place.

These figures are serious. Inasmuch as they are probably not accurate, erring on the side of under-estimating the numbers, and leaving out of account as they do the losses due to abortions, or miscarriages, they do not make clear just how serious the position is. So far as regards actual still-births, however, the position is not hopeless, and as the years go on there is little doubt that some at least of the causes that operate against the birth of a live child will be met and removed.

Causes of Still-Birth.—Of the causes that make for death in the unborn child it seems probable that very many arise within the mother herself. In some cases the cause is actually a disease to which a name can be given. In other cases, though it seems clear that the fault was in the mother, it is impossible to say why or how it arose, and there are many women who, from their appearance and from what is known of them, might be expected to bear strong, healthy children, time after time give birth to babies without life.

Diseases Responsible.—Amongst the diseases

which, if they attack an expectant mother, usually lead to the death of the expected child are many that are more or less preventable.

In this class are the various infectious diseases—scarlet fever, measles, and pneumonia, for example.

Of all such diseases, however, there are none so certain to kill the child as the so-called venereal diseases—syphilis and gonorrhæa.

In the case of syphilis, for example, it is held to be practically impossible for an infected woman to give birth to a live full-time child for four or five years from the time of infection. For several years longer she is practically incapable of giving birth to a child not damaged in some way or another by the disease. It may be noted with regard to this disease that it is not always the mother who is the source of the poison that kills or damages the child. The expectant father may be, and often is, the one to blame, since there comes a time in the course of the disease when, though incapable of imparting the infection to another individual, it is still possible for a man to injure the children that may be or might have been born to him.

Of gonorrhæa, which is commonly and erroneously regarded as a lighter infection than syphilis, it has been said that it is one of the most potent factors of sterility in women. Vast numbers of women as a result of ill-health following infection with this disease are rendered incapable of bearing children at all: just as many are rendered unfit to bring forth live children.

Many men are also broken in health by it and so rendered incapable of becoming fathers: just as

many are rendered sterile and made incapable of creating children.

The efforts that are now being made to stamp out these diseases, and to which reference will be made later, are regarded as likely to be of the utmost value to the nation. One of the ways in which they will be of value will be in reducing the number of still-births and leading to an increase in the birth-rate.

The Mode of Life.—Apart from disease conditions there are many others that exercise an influence through the mother and lead in many cases to the death of the unborn child.

The mode of life of the mother profoundly affects the chances of the child, and the woman who leads the simplest, and healthiest life—the woman with few or no worries and who is not overworked and underfed—is the one most likely to bring into the world a live healthy child.

Excesses of any kind in connection with alcohol, for example, and over-excitement are also bad.

Industrial Employment.—Very great importance is attached to the influence exerted by industrial employment of women in connection with child-bearing, as also with child-rearing. Heavy and exhausting work and work involving the use of certain materials, *e.g.*, lead, are particularly dangerous, especially during the time the woman is carrying the child.

Amongst women who must work, however, it is not always and alone the work or the materials worked with that are responsible for the failure of the baby to be born at full time alive and healthy. Just as frequently, possibly even more frequently,

the need to work because of the reward that it brings is the cause of the death of the child.

Avoidance of Child-bearing.—It is commonly alleged—and there seems little reason to doubt it—that by women who must work, not only is everything possible done to prevent conception, but, if the methods adopted fail and conception occurs, other methods are adopted that have for their object nothing more nor less than the destruction of the life of the child within them.

Indeed, the lengths to which some women will proceed to attain their object are almost incredible: almost it may be said that there is no limit to the risks they will run in order to ensure that they shall not give birth to a full-time live child.

Unfortunately the taking of precautions is not limited to the woman who must work; who cannot live if she does not work; who fears to bring into the world children that she cannot feed.

Many who cannot excuse themselves on economic grounds, who dread child-bearing and rearing for more ignoble reasons, shrink from no action that will help them to get rid of the necessity.

The extent of the evil is only guessed at: nobody knows why this man and this woman are childless, why other couples have but one or two; no tally is kept of the number of abortions and still-births that occur year by year.

Even the means of prevention that are adopted are not completely known. Amongst the really poor practically it is not denied that drugs of the crudest and most dangerous kind are largely depended upon, but other means are also used.

Amongst the women who are financially better off prevention of conception is mainly aimed at and killing of the child by means of drugs or otherwise only attempted if the preventives fail and the will to succeed is great.

The Social Factor.—By all classes defects in the social system are named as the chief reason for desiring either no children at all or only a limited number, and as an excuse for any steps taken with a view to attaining that desire. Since there is no aspect of national health that is not influenced by the social factor there is probably truth in the allegation. Everybody in fact accepts the social factor as a reason, or one of the reasons, and doubtless some day there will be a full and searching examination and an attempt to find some sort of remedy.

Here is no place for carrying out the examination or suggesting the remedy. The chief object is to describe the methods recommended by preventive medicine on behalf of motherhood and the mother and to show how they may be expected to help in the reduction of the number of still-births. So far as regards those that may be classed as more or less natural and accidental, that result from neglect of hygiene or from preventable diseases, it is believed that there is every chance of improvement, even considerable improvement.

Even some of those that cannot be directly controlled by such methods as the hygienist may devise and practise may be to some extent influenced and some slight improvement obtained. The matter is too important a one for pessimism. All the enthu-

siasm possible is wanted ; all the effort that can be put into it must be put in. As part of the effort ante-natal work is worth doing, ante-natal centres are worth establishing, even if the result is only a little lightening of the mother's difficulties, a slight fall in the national death-rate, and a slight alteration in the proportion of still-births to live births.

III

THE INFANT

In the previous section, though it was inevitable that references should be made to the infant, the chief bulk of what was said related to the mother and was directed to describing the measures that should be employed with a view to improving matters so far as she was concerned.

In this section it is proposed to take up a consideration of the position so far as it relates to the baby which, having passed the risks attending the period of birth, has succeeded in becoming part of the population of the country and a potential citizen of the future.

The risks which the unborn child must run are very considerable. This was shown by the figures quoted, particularly those relating to still-births. Those run by the baby that is born, if judgment is based upon figures, are no less great.

The chances against a baby being born alive seem to be, on an average, about 1 in 8 or 1 in 10. The chance against the baby that is born alive getting through the first year, though districts differ and circumstances cause variations, taking the country as a whole and the year as a whole, are also about 1 in 10. In the earlier months of the twelve the

chances against are greater, those in favour increasing as the months go on.

The following set of little tables, which contain information with regard to certain counties and show the proportion of deaths at various ages to the number of births, are of great interest in this connection.

The first table relates to the first three months of life, which are those in which the hold on life is

TABLE X.—*Deaths of Babies under Three Months of Age.*

District.	Number per 1,000 Births.	Proportion (Chance of Death).
Northumberland (147) .	79	1 in 12
Durham (151) . .	78	1 in 13
Carnarvon (121) . .	77	1 in 13
Oxford (73) . . .	45	1 in 22
Hereford (75) . . .	43	1 in 23
London (114) . .	58	1 in 17
England and Wales (120) .	64	1 in 15

(*The figures in brackets are the Infant Mortality Rates for* 1908, *the year to which all the figures relate.*)

least secure. The new baby is in every sense new; is facing surroundings and conditions quite different from those to which it had become accustomed; is learning to depend upon its own functions in regard, for example, to digestion, heat production, and so on, instead of upon its mother.

It is little recognised, but it is a very trying period this for the infant, and a strain which it is no

exaggeration to call vast is very definitely thrown upon it.

It is not remarkable to find, therefore, that the best result that can be shown is that of 1 in 23; that of every twenty-three babies born at the same time only twenty-two see three full months of life.

The worst result, that of Northumberland (1 in 12) is not a pleasant figure to contemplate, and suggests as indeed does that of the country as a whole, that there is room for great improvement.

The next table contains information with regard to the second three months of life. It shows that

TABLE XI.—*Deaths of Babies Three to Six Months Old.*

District.	Number per 1,000 Births.	Proportion (Chance of Death).
Glamorgan (154) . .	35	1 in 29
Durham (151) . .	31	1 in 32
Northumberland (147) .	28	1 in 36
Stafford (131) . .	28	1 in 36
Gloucester (80) . .	11	1 in 91
Dorset (77) . . .	10	1 in 100
London (114) . .	23	1 in 43
England and Wales (120).	24	1 in 42

the chances against death become greater as infancy advances; that the baby is becoming used to its new surroundings and conditions, is getting a stronger grip on life and acquiring the power to live.

Considerable as the improvement is, on the whole the margin of safety offered to the babies is not very

wide, and in the worst of the counties—Glamorgan (1 in 29), Durham (1 in 32), and even the country as a whole (1 in 42)—is narrow indeed.

In the second six months of life, as the next table shows, the chances of the baby become worse. New factors have come into play, new strains are thrown upon the child's body (teething, for example), and he is called upon to learn new lessons, to depend

TABLE XII.—*Deaths of Babies Six to Twelve Months Old.*

District.	Number per 1,000 Births.	Proportion (Chance of Death).
Glamorgan (154) . .	43	1 in 23
Durham (151) . .	42	1 in 24
Monmouth (140) . .	41	1 in 24
Oxford (73) . . .	15	1 in 67
Wilts (78) . . .	15	1 in 67
London (114) . .	33	1 in 31
England and Wales (120).	32	1 in 31

more and more upon himself, since he has become less and less a part of his mother—can obtain less and less even in the way of protection from her body.

The best chance that can be offered (1 in 67 in Oxford and Wilts) is much below that in the second half of the first six months (Dorset 1 in 100).

The worst (Glamorgan, 1 in 23) is just about the same as the best chances in the first three months of life.

As already stated, over the whole of the first year the chance figure for the entire country is roughly 1 in 10, one infant in every ten born dying before the age of twelve months is reached.

In other words, the infant mortality rate year by year of this country—*i.e.*, the number of deaths of infants under one year age—is something like 100 per 1,000 births.

The actual figures for the last three years were : 1914, 104 ; 1915, 109 ; 1916, 91.

In these years, as is generally the case, the rate varied considerably in different districts in the country and in different parts of the same district.

In rural districts it is almost always lowest, lower certainly than in urban districts, and in counties in which the bulk of the population is rural the rate is generally at least 20 or 30 per 1,000 lower than the average for the country.

Amongst urban districts the rate is always higher in those of a manufacturing class than in such as are more or less purely residential.

In mining districts it is highest of all. In some of these, indeed, rates round about 200 are sometimes shown, one out of every five babies born failing to reach the end of the first twelve months.

In the tables given above the rates are shown for certain of the counties which were selected to indicate the chances of the baby at various ages throughout the first year of life.

The following table deals more definitely with the matter of rates covering the whole twelve months, and gives a good idea of the extent of the variations between districts differing in character :—

TABLE XIII.—*Infant Mortality*, 1913.

Districts.	Deaths under One, per 1,000 Births.	Variations.	
		Highest Rate.	Lowest Rate.
England and Wales .	108	126 (Northern areas)	92 (Southern areas)
Durham .	137	168 (Stanley)	59 (Weardale)
Lancashire.	125	337 (Kirkham)	14 (Withnell)
Glamorgan.	124	174 (Aberdare)	49 (Oystermouth)
London .	106	155 (Shoreditch)	73 (Hampstead)
Middlesex .	84	150 (South Mimms)	24 (Northwood)
Kent. .	79	152 (Rochester)	25 (Cheriton)
Surrey .	71	130 (Ham)	20 (Haslemere)
Berkshire .	70	125 (Wantage)	43 (Wallingford)
Hertfordshire	61	125 (Berkhampstead)	18 (Ware)

In addition to showing the variations as between large districts the tables are interesting because they show that not alone are there differences as between districts, but differences also within each of the areas. It will be noted, for example, that even in the best of areas there are spots where the rate rises considerably above the average rate for the country, and that conversely in the worst areas there are districts where the figure is far below the lowest of all the selected areas. In the case of Lancashire, as a matter of fact, though the whole rate is much higher than the rate for the country, and there is nothing outside Lancashire anywhere near the highest figure (337), still the lowest figure for the county (14) is the lowest also in the whole table.

Apart from variations in large areas there are variations in the small areas also. Indeed, as shown in the case of the borough of St. Marylebone, it is

the common experience to find districts with widely different rates in every area.

TABLE XIV.—*Infant Mortality Rates, Borough of St. Marylebone,* 1915.

—	Deaths under One per 1,000 Births.
Whole Borough	96
All Souls	57
St. Mary	103
Christ Church	104
St. John	80

Of the four sub-districts named, that with the highest rate (Christ Church) is the poorest and has the largest population. St. Mary is the next highest as regards population; St. John, which includes St. John's Wood, is purely residential, but the population is only about half that of Christ Church.

Interesting as it is to inquire as to number of deaths and to note the manner of distribution of the rates and the variations that occur, the facts obtained, though they reveal a serious state of affairs, can only be regarded as indicating a necessity for further investigation.

The most important inquiry that falls to be made is, obviously, into the causes that lead to the deaths represented in the figures—that make the baby's chance of death 1 in 10, or, as some one looking at gross figures has put it, lead to the death of a baby somewhere in England every five minutes and make

being a baby in this country a more serious and dangerous matter than being a soldier in France.

Turning to a consideration of this point, and inquiring with regard to causes, the first statement that may be made is, that though the diseases and conditions set down on death certificates as the cause of death in babyhood are very numerous, they can with very little trouble be arranged into quite a small number of very definite groups.

Everywhere throughout the country, whether the infant mortality rate be high or low, the deaths many or few, the grouping of causes can be carried out.

The groups thus formed are four in number, viz. :—

1. Developmental and Wasting Diseases.
2. Diarrhœa and Diarrhœal Diseases.
3. Respiratory Diseases.
4. Infectious Diseases.

Developmental and Wasting Diseases.—Amongst the deaths that fall into the first group are those that are due to *prematurity*, in which the baby has arrived before its due time and is unable to cope with the conditions which it encounters ; those put down to *congenital defects*—harelip, for example, which interferes with suckling. Cases of incomplete development of some of the internal organs, such as the heart, stomach or bowels, are also put in this group, as well as the very large number which are certified as due to *debility and wasting*, conditions that sometimes result from sheer inability of the organs and tissues of the infant's body to make use of the nourishment provided.

Diarrhœa and Diarrhœal Diseases.—In

the second group all deaths the result of *diarrhœa* are placed. Most of the deaths included are from that form of diarrhœa known as *epidemic diarrhœa*, to which reference will be made later.

Respiratory Diseases.—Deaths from *bronchitis* and *pneumonia* are mainly those given a place in this group.

Infectious Diseases.—*Measles* and *whooping-cough* are the two most important infectious diseases causing death in infancy. Such deaths are always included in the fourth group.

Speaking broadly, the diseases and conditions named in the first group are those responsible for most of the baby deaths in the majority of districts. As might be expected, they are most in evidence as causes of death in the earliest period, the first few weeks of life particularly. Obviously this must be so, since the child that is not properly developed, being incapable of taking and absorbing nourishment, cannot possibly go on for long.

As to which of the remaining three groups shall come next in order of responsibility depends largely on circumstances.

In some districts, particularly such as are insanitary, *diarrhœa* always claims a large number of victims, making this disease almost as important as, or only a little less important than, the conditions referred to in group 1.

The number of deaths put down to bronchitis and pneumonia and the *respiratory diseases* varies largely with the weather. *Infectious diseases* deaths are more or less in evidence as there are or are not epidemics.

In districts which can be classed as fairly good from the sanitary point of view, the death-rate from both diarrhœa and respiratory diseases is on an average low. If, however, the late summer and autumn months be hot and dry there is certain to be an increase in the number of deaths from diarrhœa, and if cold and wet an increase in the number due to respiratory and lung troubles generally.

In districts of this class, indeed, it is not at all uncommon to find second place occupied on alternate years by diarrhœa and respiratory diseases over a long series of years, one or the other giving place now and then to the infectious diseases should an outbreak of measles or whooping-cough occur.

The proportions contributed by each of the groups to the total number of deaths in spite of slight variations is fairly constant in the country as a whole and in the different areas.

The usual figure for the developmental diseases is 30 to 35 per cent.; for diarrhœa, 14 to 15 per cent.; for respiratory diseases, 13 to 14 per cent.; and for the infectious diseases, 5 or 6 per cent., more or less.

In the borough of St. Marylebone in the year 1915, for example, developmental diseases gave 35 per cent. of the total infant deaths; diarrhœa, 14 per cent.; respiratory diseases, 13·8 per cent.; and infectious diseases, 6 per cent.

Other causes that gave a fair percentage of cases in this year, and generally do everywhere and every year as a matter of fact, were "injury at birth," convulsions, overlying, the venereal diseases, and rickets.

Most Diseases Preventable.—Some of these conditions will be referred to later in detail; in the meantime, with regard to practically every one of the causes it may be, and probably has been, noted that they appear to be, if not absolutely preventable, at least very largely controllable. Looked upon as diseases they do not at all seem to be of the class that must of necessity lead to a fatal result and that cannot be treated with very considerable hope of success.

As regards this impression of preventability, it is worth mentioning that the Registrar-General himself, after full consideration, has said that no part of infantile mortality is to be regarded as "essentially inevitable."

With this statement, tremendously optimistic though it be, there are few amongst those engaged in dealing with the problem who do not agree. There is every reason for accepting it. The results already obtained, a reduction in the rate that has led to a saving of 20,000 infant lives annually for a number of years, support it; what has been said with regard to the diseases responsible for the infant deaths and their preventability and controllability lends further support; what is to be said now as to the factors leading to these diseases and the conditions inducing them does not tend to a lessening of the feeling of optimism.

Factors in Infantile Mortality.

With regard to the factors in infantile mortality, it may be noted first that it is considered that they

may be arranged in three fairly definite groups for the purposes of treatment :—

(1) *The ante-natal group*, which includes conditions affecting the child as yet unborn ; (2) *the natal group*, through which death comes to the child at the time of birth because of the condition of the mother or the conditions under which the birth occurs ; (3) *the post-natal*, or *after-birth group*, which brings death or injury to the child out of its new surroundings.

Examining the diseases as classified above, it is not difficult to decide which are ante-natal, which natal, and which post-natal in their origin.

Most of those classed as *developmental* and *wasting*, for example, may be taken as acquired before birth. Harelip, cleft palate, and such like defects in development obviously are ; and wasting and debility, though in many cases they may date in the period after birth, are largely due to weakness or disease on the part of the mother prior to birth.

Of the natal conditions, those occurring at the time of birth, the most typical are those referred to as "injury at birth." To this cause quite an appreciable number of infant deaths are traceable and result in many cases because the mother suffers from some defect or deformity, or because there is lack of care on the part of the mother or those in attendance upon her at the time of birth.

Of conditions arising out of post-natal factors diseases of the breathing apparatus, measles and diarrhœa, and the other infectious diseases are obvious examples. These invariably arise after birth, and clearly only the surroundings in which

the infant finds itself, and the care and treatment generally which it receives, determine their occurrence.

The Influences affecting Infantile Mortality.

Grouping of the factors in infantile mortality in this way, and analysing the various diseases and conditions causing death and allocating them to their proper group, though interesting, does not help very much in deciding as to what should be done in the way of prevention. Before action can be taken it is essential to know what are the conditions, causes, and influences at the back of the factors and underlying the failure of the child to be born alive and to live.

To say that there are ante-natal, natal, and post-natal factors is only to declare that there is need for work and for watching before the child is born, at the time of its birth, and after it has taken its place in the world.

To recognise the causes is to recognise actually what is to be dealt with ; and the name of the causes is legion. In connection with them there is room for every sort of opinion ; there is this to be indicated by one set of individuals as the only matter requiring attention, and that to be exclusively blamed by another set.

Even the causes, however, are capable of grouping, and the following, which is based more or less on a classification laid down by Sir Arthur Newsholme in a Report on Infant and Child Mortality which he submitted to the Local Government Board in 1910,

may be regarded as taking into consideraton most of the influences which appear to have a part in the problem :

1. Age of the mother.
2. State of the parents as to marriage as it affects the legitimacy or illegitimacy of the baby.
3. Poverty and social condition.
4. Employment of the mother.
5. Place of birth—town or country.
6. Sanitary surroundings.
7. Home conditions—cleanliness, overcrowding, etc.
8. The mother's knowledge of mothercraft.

More simply still it may be said that what it comes to is, that there are social influences, those numbered 1 to 4, for example, and sanitary influences, numbers 5, 6, and 7, at work in addition to the maternal influence (8), which stands by itself.

This comes out more clearly if each of the separate influences be analysed and the evidence that has been produced to show the extent of its effect upon infantile mortality be examined.

1. The Influence of the Mother's Age.

In regard to this the allegation is that the baby's chances depend upon it to a large extent, since it is found that in districts where the tendency is for marriage and child-bearing to take place in the teens of the girls the infantile mortality rate is high. Stated in figures, it appears that if the marriage returns of a district show a proportion of marriages

of women under twenty-one, amounting to about 20 per cent. of the total, there it is almost invariably the case that the number of babies dying is about 150 per 1,000 born.

The nearer the marriage-rate for minors approaches 10 per cent., the greater is the likelihood of the infant death-rate being about 100 per 1,000 or less : which goes rather to show that if the future of the race is to be considered the age at marriage should be raised to something above twenty-one. In the interests of the mother this, as is well known, is generally recommended, the principal reason given being that child-bearing is easier at or about twenty-one, difficulties increasing with the age of the woman. That it is in the interests of the baby also that the mother should be over twenty is less generally recognised.

2. Influence of Legitimacy of Birth.

It is commonly stated, and generally believed, that the chance of the baby born in wedlock is infinitely greater than that offered to the illegitimate child. The former is sometimes, the latter is always, unwanted.

This is easily proved by means of statistics which all go to show that up to the age of six months the chance of the illegitimate infant is 100 per cent. less than that of the legitimate.

Above six months the prospect of the illegitimate baby surviving is over 70 per cent. less.

The reasons for this are, obviously, that the unmarried woman takes and receives less care before

the baby is born and at the time of the birth, and that this reacts upon the child. The unwanted baby, too, in the majority of instances in this country, is clearly shown that its room is preferable to its company and is apt to suffer considerable neglect, if not worse.

The difficulties put in the way of the unmarried mother who desires to find a home for her baby while she herself continues her efforts to make her own and the child's keep are tremendous. No one seems to make proper provision ; there are few or no institutions to which she may go ; respectable and dependable foster-mothers willing to take illegitimate children are not numerous or easily accessible, and practically the mother is driven to abandon her child to a baby-farmer, or possibly even a worse fate. For one reason or another charitable bodies are unwilling to undertake the provision of institutions for the reception of illegitimate babies, and the authorities appear to be unable to provide such places. It is unfortunate that there should be this unwillingness and lack of power, since all the evidence seems to support the belief that the time has come when even illegitimate children are of value to the country and are worth preserving.

3. The Influence of Poverty and Social Position.

These exert a tremendous influence in relation to infantile mortality. In every town it is always the case that the quarters in which the poorest classes live give the highest number of infant deaths per

1,000 of the births. This may, of course, be due to other factors—bad housing or defective sanitation, for example ; but there is little doubt that poverty as such also plays a great part.

Obviously it must, since it implies a reduction in the chances of the child obtaining a full and proper supply of all those things that its health, comfort, and well-being require.

How can the mother, no matter how learned she may be in mothercraft, give the child all it needs in the way of attention, when attending to it is only one of a multitude of her motherly and housewifely duties ? How can she get all the things the baby requires when the means at her disposal are generally totally inadequate to supply the needs of any single one of the family, including herself, the member to whom almost invariably least thought is given ?

One of the most commonly-heard of the many wise saws with regard to money is that with it health cannot be bought. It may be impossible, it is true, in a number of cases to bring back the health that has been lost, but with money the makings of health, the things that conduce to good health, can be bought, and in the case of the woman about to become a mother and in that of the baby it may buy even life itself.

For the woman it means power to purchase care and rest and nourishment—all of them essential in the preparation for and throughout the trial she is to meet ; all of them essential in the interests of the unborn child. And after the confinement, money means power to continue keeping up the supply of care and nourishment.

For the child after birth every minute that the mother can give to it, every particle of care it can get, is of the utmost value. These minutes and that care can be bought as easily as the nourishment that will help the mother to go on from day to day with the work of giving care and will help the baby to maintain and add to the health it was born with.

This is a point that need not be laboured; as already indicated, the intention here is to refer particularly to the aspects of the problems that may be dealt with by the means at the disposal of the health worker. The social factor is vastly important; the health worker may note and grieve over the poverty he sees, but he must work on in face of it.

4. Influence of Employment of the Mother Outside the Home.

This is an element in infantile mortality of which a very great deal has been made in certain quarters. With regard to it, there are some who hold that it always reduces the chances of the child, and others who think that its importance may readily be over-estimated.

Both parties produce figures in support of their view—the former showing that in districts in which there are trades at which women can and do work a large proportion of babies always die; the latter in their turn proving, apparently conclusively, that there is no great difference in the numbers of deaths of babies amongst employed and unemployed mothers.

If more babies of employed mothers die it is, in their

opinion, because there are other bad things, social and sanitary, associated with the employment. They add, further, that even if the absence of the mother from the child on account of the necessity to earn money is not in the interests of the baby, any possible harm is more or less counteracted because the money earned purchases things that might otherwise have been lacking and make for the benefit of the child.

Probably the truth of the matter lies between the two views, and the harm that may be done may be greatly reduced by placing restrictions on the employment of women for a certain time both before and after the child is born.

So far as industrial employment of women before marriage is concerned, there is this to be noted—that it commonly leads to a failure to acquire a really sound knowledge of the work and duties of a housewife and mother, that may react unfavourably upon any children that may be born to such a woman. This is a point of some importance to which attention is particularly directed by those who are interested in the establishment and running of Schools of Mothercraft.

It will be noted that it is *industrial employment* that is held to be particularly bad both for the mother and the child. Nothing is said of the domestic work that must be done by the woman. And yet, hard as may be the work that the industrially employed woman has to do, it is not harder or more trying than that that must be done by many of those who stick to the home and the work of the home.

It may be lack of method, or lack of appliances and lack of money, but these women, particularly if the family is of any size, never seem to have a moment's respite from drudgery of the worst and most depressing kind.

The woman in the factory has a chance of seeing the end of some particular task and of receiving some sort of reward—must get some sort of feeling of satisfaction out of it.

The housewife and mother in the poorer class home never has, and cannot possibly have, such satisfaction. Little is done for her, little thought given to her, and in any event the conditions involved in her case are not such as can be dealt with by the health worker.

5. Influence of Place of Birth.

In the general experience, the baby born in the country always has a better chance than the town baby. Doubtless the chief reasons for this are sanitary and social.

In many respects, of course, the person living in the country is worse off from the sanitary point of view than the town dweller; his water supply, for example, is generally very much less satisfactory, and sanitation, so far as drainage and scavenging are concerned, is not infrequently bad. Where he does have the advantage is in the matter of space and air. It is much less common for the country baby to find itself, as the town baby so often does, occupying a room that is crowded with other people, in a house that is crowded by other houses. It is much less common for the country baby to be called

on to breathe, day and night, air that is never clean in a place that is never and can never be properly clean.

The country baby has space to get away from others and the air contamination which he and they give rise to; the town baby practically never has such space. He always has to share his space and his air with somebody else.

In other words, it is *overcrowding* that the poor town baby is up against, and overcrowding always means dirt and air contamination.

Financially the country baby is, on an average, worse off than the town baby, the earnings of a man employed in the country allowing only of a comparatively low standard of comfort for his family. The baby is therefore handicapped to some extent. Despite this handicap, however, the country baby gets ahead, and, though the eugenist would probably hold it was entirely a matter of stock and sound parentage, it seems not unlikely that surroundings have something to do with it.

6. Influence of Sanitary Surroundings.

Sanitary surroundings in the home and in the district may quite safely be regarded as an element of some importance in relation to infantile mortality. The less satisfactory they are, the greater the risks to the infant. There are many things a baby can contend with, such as poverty, and some amount of lack of maternal care, but he cannot fight with *dirt* and all that dirt means in the way of the infection of air, food, and water with germs.

The figures with regard to infantile mortality all bring this out and show that the districts in which there is defective sanitation are exactly those in which this rate is highest.

Investigation of these figures points to the conclusion that the insanitary conditions associated with most danger are :—

(1) Want of proper drainage and sanitary conveniences ;

(2) Bad scavenging, particularly if there are old-fashioned and defective sanitary conveniences ;

(3) Bad and neglected and unpaved streets and back yards.

In quite a number of districts of fair size examples of these conditions, or what has been called "sanitary barbarism," are to be found. These districts are the black spots of England, and in them the wastage of infant life is often appalling.

The responsibility for neglecting to give the conditions attention is on the councils of the districts, and the objection to doing something is, of course, that it costs money. Persons of the class too frequently found represented on small councils are inclined to have a greater respect for money than for lives, particularly infant lives ; are inclined also to regard the feelings of those who own property as of more importance than the health of those who occupy the property, and to regard their work in relation to the health of the ratepayers as the least instead of the most important they have to perform.

In districts in which sanitation is defective and neglected, the most frequent cause of death amongst

infants and very young children is *Epidemic Diarrhœa*. This is an acute infectious disease affecting mainly the very young. It is exceedingly fatal to infants.

It is due to germs that live and flourish in filth, but possess the power, when they find their way into a baby's body, of setting up conditions so serious that death may follow very rapidly. Entrance to the body is usually obtained with food, into which the germs have been carried from the filth by flies and on dust wafted about by the wind or currents of air. In some cases the " dummy teat " or " comforter," that having fallen upon the floor is immediately afterwards placed in the baby's mouth, undoubtedly acts as the vehicle upon which the germ is carried.

Children affected with diarrhœa discharge great quantities of the germs in the motions passing from them, and if the greatest care and cleanliness are not exercised, in regard particularly to diapers, spread of infection may take place quickly.

If filth or articles soiled with excreta are allowed to remain in or about a house or in its neighbourhood, there are grave risks of the carriers of the germs—flies, for example—gaining access to the material and picking up and carrying the germs with them.

In districts, towns especially, in which the modern form of water-closet is not provided and connected up with proper drains, and in which filth is accumulated near the houses until removed by hand, there exist just the conditions which encourage spread of the germs of diarrhœa, and it is in these that the disease is most rife and that most babies are killed by it.

In Nottingham, for example, where the number of deaths from diarrhœa has always been high, the chief form of sanitary convenience until quite recently was the old-fashioned pail-closet. The medical officer of health of that city without hesitation places the responsibility upon this form of convenience, and is largely able to prove his case by pointing to the steadiness with which the number of deaths has fallen as the work of replacing the old form of closet with the modern type water-closets has progressed. "The annual average of deaths for each of the four successive five-yearly periods between 1895 and 1914," he says, "were, respectively, 427, 290, 213, and 209. In 1915 the number was 166. In four and a half years since 1912 nearly 5,000 new closets have been provided in place of old ones, and during those years the reduction in number of cases of diarrhœa and of deaths from this cause has been particularly marked."

In places where pail and similar closets are found, soiling of the ground with filth is a fruitful source of spread of infection, and in connection with this it may be noted that the weather conditions that favour multiplication of germs in the earth are those associated with a particularly marked prevalence of the disease.

In warm summers diarrhœa cases are most numerous because the heat encourages the activities of the germs. In cold, wet summers the disease is less prevalent because the germs cannot multiply so rapidly in the soil—may, indeed, fail to live for any length of time.

As showing how important food contamination is,

it may be mentioned that it is the baby fed on the bottle with milk frequently open to receive dust and the visits of flies that is most commonly affected.

The baby fed, as all babies should be fed, naturally on the mother's milk, runs fewer risks, because the food is not exposed at all, but passes straight from the mother's body into that of the child.

In referring to differences between the chances of the town and country baby it was pointed out that in country districts sanitary conditions were generally less perfect than in towns. In the country it is true that proper sanitary appliances are commonly lacking, but there the management of the less perfect conveniences is easier than in a town, and there is comparatively little difficulty in disposing of the material at a distance from habitations. For these reasons diarrhœa is not so liable to be a risk to the country baby as to the town baby.

7. Influence of Home Conditions.

The sanitary condition of the dwelling is not less important than that of the surroundings of the dwelling, and in this connection the two chief points are its state in regard to *overcrowding* and *cleanliness*.

Overcrowding.—In referring to the importance of overcrowding of houses in an earlier section it was noted that its influence on infant life and the chance of the infant was very great. The baby living in an overcrowded house has not only such conditions as poverty, that make for overcrowding, to combat, but it has to meet also the evils arising out of the overcrowding itself, viz., exposure to air polluted

by use by others and a lack of pure, fresh air. When in addition to finding itself surrounded by unclean air it encounters also unclean people and unclean articles, its plight is very much worse, and its struggle for health and life becomes almost hopeless.

Practically *a baby cannot fight filth.* It should not be asked to, and of all the sanitary improvements those that affect housing take a very important place. Huddling of people together in houses that are too small to accommodate them and to allow of elbow-room for them is one thing that should not be allowed to exist, and that should be corrected wherever detected.

Such arrangements are indecent and unhygienic. They make for uncleanliness, since, providing hardly enough room for the individuals to turn round in, they allow too little for the person responsible for cleansing to do the work properly.

The provision of proper housing accommodation, in the interests of hygiene, is a requirement of urgent importance in a great number of districts in Great Britain. The amount of space that *must* be allowed per family and the amount of rent that *may* be charged for such space will have to be settled some time, and until scales are fixed and enforced there will continue to be much damage done to health and life, as a result largely of overcrowding and lack of cleanliness.

That it is the health and life of the baby and the child that suffer most make it all the more important that a solution of the problem of housing should be found as soon as possible.

8. Influence of Ignorance of Mothercraft.

The last entry on the list of factors stated to be capable of exerting an influence on the infant death-rate relates to the mother and her knowledge of mothercraft and her ability to mother her child.

To those who believe that every woman is born with all the qualifications for rearing and bringing up children and practising housewifery and allied arts, the suggestion that there is any possibility of any woman being without the ability to act as a mother will probably appear most offensive.

Offensive as it may seem, however, there is all too much reason for ascribing many infant deaths and much of the difficulty in reducing the numbers and in controlling the rate of infantile mortality to ignorance and fecklessness on the part of the mothers. Experience amongst babies and mothers proves conclusively that all mothers are not endowed with a complete knowledge of how to deal with infants. There is much neglect of babies ; many babies die of neglect much of which is due to want of knowledge, want of method, want of common sense even, on the part of the mother.

Some of it probably is due not so much to lack of ability as to lack of willingness to take all the trouble that motherhood means.

The bringing up of a baby, from the health point of view, is a difficult and most responsible task.

If the mother is to carry out her responsibility properly she must be prepared for sacrifice. She must recognise that practically as soon as she becomes a mother she has ceased to be her own

woman—is no longer a person with any time for herself.

The baby has first call on practically all her time—must have it if it is to thrive.

The mother must give of herself all the time. Before the baby is born it obtains all its nourishment from her ; after it is born, and for nearly the whole of the first year of its life, she is still expected to provide out of her own body all, or nearly all, that her child needs in the way of food.

She is so made that she can give of herself in this way ; the baby looks to her for a share of her body, and if she is looked to to deplete herself on behalf of her child it is little more to ask that she should recognise the minor sacrifices in time, in labour, and in leisure that she must make.

The recognition of the need for these sacrifices is still rather incomplete. Many women cannot and will not see that it is life itself that the child seeks from the mother and that only she can give it. As a fact, the ignorance amongst women with regard to the whole process of child-bearing and child-rearing is colossal.

Even amongst those who do recognise that it is the natural thing for the infant to get its nourishment through the mother there are many who fail altogether to provide it, or to provide it properly.

The ignorance of this simple natural process is surprising.

When it comes to other matters in relation to infant-rearing the ignorance, though possibly less surprising, is no less great.

The fact, indeed, cannot be blinked that if the

best interests of the baby are to be considered the majority of mothers will have to be taught how to be mothers; how to perform not only acts that go to make up mothering, but also the natural functions that are the essentials of mothering.

For the mothers who do not require actual teaching, guidance at least is needed if the interests of both baby and mother are to be taken into account and the mother is not to be left to muddle through and the baby to fall a victim to the muddling.

That the babies do suffer because there is muddle and because the mothers are ignorant is shown by the fact that *the death-rate amongst first-born children is higher than among those that come later*. And it is nothing but the ignorance and the muddle that kill them, because in all other respects, financial and such like, except in the case of improvident and ill-considered marriages, the first baby should really have the best chance.

It is not always, of course, that the muddling ceases and the ignorance disappears with the first child. The woman who knows all about babies because she has had eight children and has buried seven is not only the heroine of an oft-told tale! She is continually being met with by workers amongst babies. She is to be found in every district flourishing the death certificates of her lost babies as evidence of her ability to advise young mothers and in support of her statement that there is nothing that anybody can teach her about the rearing of children.

Unfortunately women of this kind have many opportunities of corrupting mothers, and, as they take advantage of these opportunities, are largely

responsible for the fact that the ignorance is only slowly disappearing.

Prevention of Infantile Mortality

In the prevention of infantile mortality, and the methods devised to this end, the very greatest importance is attached to the question of ignorance, and the most strenuous efforts are made to ensure that there shall be sound teaching and proper guidance for the mother at all stages.

Probably the greatest amount of good can be done by means of individual teaching and guidance, and wherever possible in districts where the problem is attacked the practice is made of sending persons capable of acting as teachers and guides into the homes of the people. For this work women who have undergone special courses of training and are qualified and experienced are generally employed. These women are known usually as "health visitors" and are to be found in greater or less numbers in practically every district in the country, acting as the guide, philosopher, and friend of the mothers and babies in the neighbourhood.

For the reason that it is not easy to provide a sufficient number of visitors to carry out individual teaching, it is generally found convenient to give some amount of the instruction more or less in classes at a centre.

Schools of Mothercraft.

The necessity for this has led to the establishment of what are known as Schools of Mothercraft or

Schools for Mothers and Infant Consultations. These not uncommonly, and indeed preferably, are worked along with the maternity centres and clinics already referred to.

At the best of these "schools" some part of the teaching is done by members of the medical profession, who generally also find themselves called upon to give advice and guidance in the case of individual babies.

Primarily what is taught, both in the home and at the schools, is how to feed the baby. Here it is not proposed to enter into any details as to the method of teaching adopted in relation to this important matter, though it may be noted in passing that one thing always taught is that it is the duty of the mother to feed her baby herself.*

Great stress is laid on the benefits to be derived primarily by the baby, but also to some extent by the mother, as a result of the adoption of this practice. Curiously enough, it is not the poorest who require to be urged to adopt natural feeding. In their case there are many reasons why they should adopt it.

Generally it is done because it is more economical and really less troublesome, provided the feeds are given at regular and not too short intervals by day, and night feeding is avoided. That the practice is more advantageous to and safer for the baby from the point of view of infection with diarrhœa, etc., is only a secondary consideration with the poor.

It is in the reaches of society above the poorest that pressure for the adoption of natural feeding

* See Appendix for specimen leaflet.

must be exercised, but even there the practice is becoming more common.

Infant feeding, of course, is not the only subject taught in the home and at the centre ; nor is teaching the only function of the school. At it the baby is watched and a careful eye kept upon its progress by means of regular weighings and examinations.

Consultations are offered for each case if necessary, and medical advice given if such appears to be required.

Domestic and hygiene subjects are, of course, taught, and particularly the effort is made to instil the highest ideals of motherhood, mothering, and mothercraft. The spirit of rivalry even is stirred, and by means of competitions of various kinds the mothers are induced to aim at attaining a higher and higher standard of perfection in their babies and a higher level of knowledge in this, that, and the other branch of motherhood.

This spirit of rivalry is not, however, limited to the mothers. It exists also between the various schools and centres. It is no doubt because it does exist that there have been such remarkable developments in connection with work on behalf of babies.

New routes for progress are continually being opened up by one or another of the centres, and no sooner is one opened than all the others evince a desire to take that route.

In this way new departments and establishments are continually being tacked on to the school. *Day nurseries*, which formerly were quite independent organisations, are rapidly coming to be regarded as more or less necessary additions. *Infant nursing*

homes too, into which infants may be received who require nursing and feeding, rather than medical treatment such as is provided in children's hospitals, are now also considered quite essential establishments, if the work on behalf of the babies is to be done properly.

Doubtless in time the necessity for other extensions will be recognised and attempts will be made to provide them. At the present moment the work is regarded with an exceedingly favourable eye by everybody, and practically any request that appears to be reasonable is sure of at least sympathetic consideration. This consideration, it may be noted, is given not only by local bodies. The question is more and more coming to be looked upon as a national and not merely a local one; the Government has become interested, and the purse of the nation has at last been opened to help. It is right that it should be opened; the children are the nation's chief asset, and there is no better thing that the money of the nation could be spent upon than this same asset.

There are, however, many other ways in which the money can be spent than in ensuring that babies shall cease to be the victims of maternal ignorance and shall have such advantages as can be provided in this, that or the other institution.

Many babies doubtless die because there is lack of method on the part of mothers. There are still many deaths, however, that can quite definitely be traced to factors that can only be classified as Sanitary and Social.

In what has gone before some reference has been made to both these factors and the influence exerted

by such conditions as bad housing on the one hand and poverty and the like on the other.

It is not proposed further to enter into a discussion with regard to them. It may be noted, however, that a serious view must be taken of these factors, since until they receive real and proper attention the best results will not be obtained and much of the work done in the way of teaching or otherwise will be futile.

IV

THE YOUNG CHILD

THE number of districts throughout England and Wales in which there has been total neglect of the infantile mortality problem and no attempt whatever to do something on behalf of the babies is comparatively small. Here and there a large district was at fault, but the majority of those that failed were the poorer areas—those in which the rateable value was small and the amount collected in rates, comparatively speaking, trifling. In many of these, even, an attempt at doing something was made—for example, by issuing leaflets on infant feeding and rearing immediately after receipt of a notification of birth.

In regard to the child beyond the age of one year, however, the case was different. The districts in which he was overlooked entirely and not made the subject even of what may be called "health visiting by leaflet" were much more numerous. The possibility that there might be need to do something for him was apparently never thought of. It is because there was neglect that it has been thought worth while to make a separate section dealing with the young child, with a view mainly to bringing out the chief dangers that threaten his life and health and to

indicate what may be done to counteract the threats and to ensure health for the child against the time when he is to become an effective unit in the man-power of the nation.

As indicated, it is the young child mainly who is to be discussed—the child who has passed the first birthday, and has a few years to go before school age is reached.

In these years, say those from the first to the fifth birthday, the risks to be run, though in some respects a mixture of those encountered in infancy and to be met with when the child ceases to be what is sometimes called an " ex-baby " and becomes a school-child, are in many other respects quite distinct.

The ex-baby, as a matter of fact, is very largely a different problem from both the infant and the child of school age. Recognition of the fact that he was a different problem came, comparatively speaking, late; was not, indeed, general at all until steps had been taken to deal with the problem of the infant and the school child.

That it was recognised at last was largely due to the recognition of the existence of a problem in respect of the others and the taking of steps to deal with them.

As already indicated, the necessity for doing something on behalf of the mothers and of motherhood was not really seen, and there was little talk about maternity schemes until quite an appreciable amount of effort had been expended for the benefit of babies.

When the baby problem was first taken in hand those who proposed to deal with it felt that they had

taken up something quite distinct and definite, and that by working on the baby itself, clearing away conditions that were capable of causing injury to the baby, they would do a great service to infancy. That it was a mistake to suppose that the baby might be dealt with on its own merits was very early made clear. All babies, it is true, come into the world endowed with life and health and with a capacity for living and acquiring more health and strength, and much can be done to foster the life and health that have been given and to add to the capacity for acquiring them.

With regard to this endowment, however, there is this to be taken into account, that the amount conferred is not the same in every case ; that each baby only gets so much as its mother can give, and that the mother, therefore, is a factor to be taken into account, must be borne in mind.

That she was so was not properly grasped till it was seen how far short of the success hoped for fell the work of saving the babies.

In the case of the young child the position was almost exactly the same, but there were two parties to the recognition of the existence of a problem in his case.

The first party was that which set out to deal with the school child. The members of this party fell into the same kind of error as the persons who desired to concentrate upon the baby. They overlooked the antecedents and earlier life of the school child, just as the baby workers overlooked the earlier life of the infant.

That there are many schoolchild workers who

are prepared to admit that a mistake was made is shown by the following extract from the report of a well-known school medical officer:

"When school medical work was made compulsory some years ago," he says, "we started with a fallacy. We expected to commence with a normal healthy child, starting school life full of vigour, and that all the ills which flesh is heir to began after that date. But inspection (*i.e.*, of the children) soon revealed that, in many instances, this is not the fact. Children were found badly nourished, owing to improper food. Bad teeth, adenoids and a host of ailments were prevalent which might and ought to have been prevented."

The discovery that it was necessary to do something for the children between one and five years of age was made by the baby workers as well as the schoolchild workers.

So far as can be made out, their recognition of the necessity came first.

Having regard to the fact that the baby workers—health visitors, doctors at consultations, etc.—came fairly intimately into contact with the mothers and knew the home conditions, this is not to be wondered at. Seeing the conditions, they could not fail to have it borne in upon them that it was wrong to suppose that if the child's mother was given help to steer the child through the first year of life she herself could be trusted to carry him healthily without further assistance through the years that must elapse before he passed into school and under medical and trained observation. Many of the babies at the end of the first year, when the baby workers were expected to take leave of them, were not really

properly on the way and advice and guidance were still necessary.

The workers themselves had their time filled up by, and their hands very full with, the new babies that kept coming; nevertheless they set up a cry on behalf of the "ex-baby" which, backed by that now raised by the medical workers in the schools, seems likely to lead to efforts being made to help him.

It is easy, of course, to be wise after the event and to disregard the reasons—lack of funds, shortage of workers, and expediency perhaps—that probably led to the attack on the problem of the infant and the school child before that of the young child.

A glance at the figures with regard to mortality among children of under five, however, might and should have shown that in respect of them there was a need for action, no less than in the case of the baby and the child of school age.

In a table set out on p. 8, it is shown that, at the end of the fifth year, out of every 100 children born the total survivors number 84. Of the 16 per 100 who drop out most, it is true, disappear during the first year, but each year thereafter gives its share. It can be shown, indeed, that *out of every* 1,000 *children who get through the first year of life in safety anything from* 50 *to over* 100 *may be lost before the end of the fifth year.*

The table printed on p. 84 brings this point out very well. To accentuate it still further the following facts are well worth stating, viz., that in 1911 there were over 20,000,000 persons living in towns in this country; to them there were born 2,000,000

children; of these 500,000 died before they were five years old.

TABLE XV.

—	District.	Death-Rate under One Year per 1,000 Births.	Death-Rate at Ages One to Five per 1,000 Survivors at Age One.
1911-1913	Farnworth . .	180	74
	Burnley . . .	177	96
	Wigan . . .	165	119
" "	Stretford . .	95	48
	Nelson . . .	87	58
	England and Wales	111	61

This Table shows the infantile mortality rate in England and Wales and certain districts in Lancashire and compares with it the death-rate of children between 1 *and* 5 *per* 1,000 *of those living at the end of the first year.*

These figures cannot be viewed otherwise than as a justification for taking seriously the cry raised by the workers amongst babies and by others that the children between one and five years need help. Indeed, from one point of view it might be regarded as almost more urgent that efforts should be made on their behalf, having regard to the fact that they had done so much and so well in passing through the dangers of babyhood and proved themselves to be possessed of a really good fighting chance.

One point with regard to efforts on behalf of children in this group is that to some extent it is

more evident what the requirements are, and it is possible to see some result following the steps taken.

In the case of the infant, so many of the conditions are, so to speak, not of the infant's seeking and such that nothing that can be done directly to the baby is likely to avail very much. Such conditions as prematurity, developmental defects and debility, for example, which cause between them about 50,000 deaths of babies per annum, inevitably in most cases arose independently altogether of the infant, and the way to the cause does not lie through it at all.

The cause, having operated through the mother and when the child was part of the mother, as a matter of fact has produced its effect, so far as the particular infant is concerned, and no attack made upon the cause is going to benefit that infant.

The child no longer a baby, even if it is only just out of babyhood and in the second year of life, may be taken to have worked itself more or less clear of causes arising through the mother, and the causes and threats that may have to be encountered and dealt with are produced by causes that can be seen if they are looked for and can or ought to be controlled. Many of the causes, indeed, have already been brought under control while many others that have been recognised are known to be capable of control.

The situation, therefore, need not appear quite hopeless, nor the death figures with regard to children between one and five incapable of improvement.

The figure 61 per 1,000 of children between one and five quoted in the table on p. 82 is, in this sense, a much less appalling one to contemplate than

for example, a death-rate per 1,000 births of 63 infants under three months of age.

Having been born, these sixty-three were, many of them, almost doomed never to see the end of the

TABLE XVI.

	0—1 Year.			0—5 Years.		
	Deaths.	Percentage of Total Deaths.		Deaths.	Percentage of Total Deaths.	
Measles	2,533	3·1		11,812	9·3	
Scarlet fever	66	0·1		1,110	0·9	
Whooping-cough	3,989	4·8		8,159	6·4	
Diarrhœa and enteritis	6,734	8·1	21·3	8,493	6·7	32·5
Tuberculosis (all forms)	2,459	3·0		7,137	5·6	
Venereal diseases	1,204	1·5		1,286	1·0	
Other infective diseases	614	0·7		3,266	2·7	
Bronchitis and pneumonia	15,623	18·9		27,265	21·5	
Meningitis	1,120	1·4		2,462	1·9	
Disease of eyes	5	0·0	20·7	12	0·0	23·9
,, ears	149	0·2		348	0·3	
,, mouth	180	0·2		238	0·2	
Heart diseases	37	0·0		195	0·2	
Rickets	301	0·4		728	0·6	
Cancer and other tumours	23	0·0		120	0·1	
Scurvy	15	0·0		21	0·0	
Other general diseases	166	0·2		345	0·3	
Infantile convulsions	7,413	9·0		8,740	6·9	
Premature birth, atelectasis, and injury at birth	19,521	23·6		19,521	15·4	
Atrophy, debility, and marasmus	10,281	12·4		10,281	8·1	
All other causes	10,346	12·4		15,535	12·0	
Total	82,779	100·0		127,074	100·0	

To show the deaths in England and Wales in 1912 *at ages under one and under five from various causes.*

first three months ; *having lived*, the sixty-one ought to have been more or less certain to live ; could have been, to a very great extent, helped to live and prevented from dying.

An examination of the conditions that cause death in the first five years lends a great deal of support to these apparently strong statements.

From Table XVI. it will be seen that nearly one-third of the deaths under five are due to various infectious diseases, particularly measles (which, as always, comes first), diarrhœa, whooping-cough, and tuberculosis. Venereal disease, which is shown to cause 1 per cent., undoubtedly causes a far higher percentage than that, and certainly is responsible for a great deal of ill-health and crippling.

Other diseases which take a heavy toll of the young children as well as of babies under one year of age are those in which the lungs and air passages are attacked—viz., bronchitis and pneumonia.

Amongst the young children, over 20 per cent. of all the deaths are credited to these diseases.

Giving percentages not quite so high, but still sufficiently high to be appreciable, are convulsions, about 7 per cent., and rickets, nearly 1 per cent.

Attention is particularly directed to these, and they are placed alongside the infectious diseases and pneumonia and bronchitis because they are, like them, capable of being regarded as preventable, and may be made the subject of attack with a view to getting rid of them, or at least bringing about a reduction in the number of deaths annually credited to them.

The measures that may be adopted in respect of

all these conditions, whether they can definitely be called infectious or not, are to a considerable extent on the same lines.

They are, like all preventive measures in respect of any diseases, based upon a knowledge of the causation, a fact that will be brought out presently in discussing some of the conditions named in the list and indicating the steps necessary to be taken in respect of them.

The Fatal Diseases.

With regard to the infectious diseases, it is perhaps not necessary to go very much into the detail of causation.

They all have this in common, that they are due, each one of them, to a germ or micro-organism of some sort, though in some cases, measles, scarlet fever, and diarrhœa, for example, the exact nature and character of the germ have not been definitely determined.

Having regard to the fact that these three are amongst the commonest and best known of all the infectious diseases, this is somewhat surprising.

Measles, for example, as shown in the table, caused nearly 12,000 deaths of children under five years of age, in addition to nearly 3,000 of babies, in the year 1912.

Some years it causes many more than this, and in the later years of life, amongst children of school age and attending school, where the chances of infection are greater, it also causes deaths. It causes as well a great deal of suffering, paving the way for a vast

amount of ill-health as a result of ear trouble and lung trouble, and leaving the patient liable to other diseases, most noteworthy amongst them tuberculosis.

Measles is known in every part of the country; is so common, indeed, that the person who has not had it is more or less of an exception, and the individual who does not know what the rash is like is looked upon as rather ill-informed.

And yet, with it always present, investigation has not brought the discovery of the germ any nearer, and the most that can be said is that the disease must be due to a specific micro-organism because it runs a definite course and lasts only a comparatively short time.

Though persons of any age practically may receive the infection, young children are very much more liable to attack. This is not to say, of course, that *every child* is liable to attack and must be attacked. Very many, as a matter of fact, escape, and many are quite incapable of being attacked—are, in short, proof against or insusceptible to the infection.

Of the great number who are attacked, and, having regard to the very large numbers who die annually, the number attacked *must* be large,* there is probably a great percentage who with reasonable care need never have been attacked at all.

Contrary to the general view, no child is born labelled as a certain victim of measles; no one, indeed, is foredoomed to suffer from any infectious

* The number of cases notified in 1916 was 348,090, or at the rate of 10 per 1,000 of the population.

disease. In the case of measles it is of course difficult to escape infection on account of the many opportunities that exist of becoming infected. Protection and prevention are not, however, impossible, and up to the present have been neglected mainly because there is so much ignorance amongst parents as to how to carry out their responsibilities to their children in this regard, and so much ignorance on the part of the authorities as to the causation and mode of spread of the disease, with consequent neglect of preventive measures.

As with the other infectious diseases, so with measles, there are always *two elements* to be considered in relation to infection: the first the germ of the disease, and the second the individual attacked by the germ.

And there are *two ways of preventing the disease:* first, by dealing with the germ, exterminating it and removing the conditions that make for its existence, and, second, by so strengthening the body of the individual that the germ can get no hold upon his tissues.

While in many diseases both lines of action are open, in measles prevention is really limited to the second, the ignorance with regard to the germ rendering the first method inapplicable.

In the task of bringing about the strengthening of children to resist attack by measles there are *two bodies sharing the responsibility*—viz., the parents, or rather the mothers, and the health authorities.

Primarily it is the child's mother who is responsible; but the authorities, who can do so little in the way of direct prevention, must help her if only

by showing her how to carry out her own share of the task.

There is very much that can be done in the way of guiding the mother.

The views with regard to measles that are held by many mothers and derived mainly from their mothers and grandmothers, are dangerous in the extreme. Perhaps the most mischievous of all these views is that every child must have measles, that it is one of the "childish complaints," and opportunities of getting it early and getting it over are golden and must not be missed.

In large numbers of cases, as soon as one child in a family is attacked with this disease all the others who have not had it are intentionally placed in contact with him in order that they, too, may have the advantage of taking the infection and getting it over.

To any one whose life's work is prevention of disease; to any one who has seen how valuable even a small amount of isolation of the sick and separation of them from the healthy may be; to any one who knows how deceitful a disease measles is, how numerous the deaths it causes and how uncountable the numbers of its victims who are ruined in health and rendered liable to attack by other diseases through it, there is no more hideous doctrine than this.

It should be fought wherever it is encountered, and no opportunity should be lost of impressing upon mothers and others in charge of children the danger and folly of such a fatalistic view.

Now that it has been made the duty of parents and guardians to report to the medical officer of

health whenever any child in their care is attacked by measles, and most local authorities are arranging for nurses and qualified persons to visit houses in which cases have occurred, many chances will offer of educating all such wrong-headed notions out of existence.

Many opportunities will arise, too, for impressing the opinions that all who know measles hold very strongly—that measles is not a disease to be played with ; that it may and does cause death and suffering and disablement, and that these results may be prevented by care and watchfulness only.

These same opportunities and any others, no matter how or where they appear, must be seized for educating parents and guardians as to the necessity for building up a wall of resistance to infection within the child himself. It must be shown that it is not really difficult to do ; that it is not too troublesome or inconvenient.

The laws of health and rules of living, so far as they affect young children, are not very complicated. Care in connection with feeding and the choice of food; with cleanliness; with fresh air and exercise; with sleep, and with the proper and regular performance of the few natural functions performed by the body in these early years: all these are readily made part of the mother's daily work.

Once regular practices are commenced in these connections they continue to become easier and easier ; they become a matter of routine which the child himself helps to carry out.

Another very important routine practice that is not too difficult to attend to is observation of the

child for the appearance of anything that is not quite right in regard to its health. Defects and decay in the teeth, or trouble with the throat or the nose, all of them important in relation to the acquiring of infection, should always be looked for and dealt with at once. The reward for carrying out these practices of attending to the observance of the rules of health and of watching the child is immense. It means for the mother a diminution in the amount of worry as to the child's progress. For the child it means an increase in the powers of resistance to infectious and other diseases, strengthening of the body for the trials that come in the school-age period and after.

WHOOPING-COUGH.—Much that has been said with regard to measles applies in the case of whooping-cough. This disease kills annually anything up to 10,000 of the children of one to five years of age; in a great proportion of those it does not kill, because it is an exhausting disease, it paves the way for consumption and other diseases or lays the foundations of a life of ill-health by leaving the individual liable to recurring attacks of lung trouble.

That there is a definite germ associated with whooping-cough seems to be certain, but of the methods in which infection may be spread only one really is known, viz., by means of contact with a person suffering from it or with the material which he coughs up, particularly in the early stages.

The scheme of dealing with whooping-cough has not been carried so far as in the case of measles. There is no general requirement that parents or guardians and doctors should report the infection

of any child with it, and there is, therefore, less opportunity of coming directly into the home where the danger is present and pressing for attention to be given to it.

The task is made more difficult because of this; but it must not be shirked. Whooping-cough must not be forgotten as one of the conditions that can be guarded against, by the giving of care to young children and by seeing that they are shielded from exposure to infection. The rules in respect of feeding and the other matters already mentioned must be attended to, and minor ailments and defects in relation to the teeth and the other structures and functions of the body detected and remedied early.

Particularly, warning should be given, and brought as fully to notice as possible, of the necessity for carefully looking after the child who is attacked, insuring that he or she is isolated and nursed during at least the early stages, when danger of spread of infection and of injury to the child are greatest.

In connection with these matters, it may be pointed out how little is done by the authorities and others on behalf of child victims of this most trying and serious disease. Only exceptionally is any provision made for isolating cases in hospital, and no compulsion whatever is exercised in respect of isolation in the home. The majority of the cases, as a matter of fact, are not supervised at all, and doubtless many of the deaths and much of the spread of infection result because the officers of the authorities, knowing nothing of the occurrence of the cases, are unable to get into touch with the parents or guardians and to give advice.

Now that a beginning has been made in the case of measles it may be hoped that, if the system adopted in regard to it is successful, attention will be directed to whooping-cough, and similar or other suitable methods applied in connection with it.

In the meantime there seems to be no other course open than to try by means of publicity to get a serious view of the disease taken by all in charge of children. Improvements in the general health of children and an increase in their resistance should also be sought by assisting mothers to learn and to apply the rules of health on behalf of the little ones. This is teaching work that may be undertaken by the authorities, who should also see to it that housing and sanitation generally receive all the attention they need.

Epidemic Diarrhœa.—This disease has already been referred to in discussing the conditions responsible for deaths in infancy. It is mentioned here again because annually it causes anything up to 10,000 deaths per annum amongst the young children and is to be regarded as serious so far as they are concerned.

That it is really serious in the case of the little babies has already been impressed. It is serious to them because they are little and not possessed of any great amount of strength and resistance upon which to come and go.

The children over one and under five are really very little, too, however, and what powers of resistance they have, though greater certainly than those of the infant, do not amount to very much.

These little ones are just as liable to get the

infection of diarrhœa into their bodies with food and in other ways as are infants. Indeed, because they are, generally speaking, getting a greater variety of food, much of which is liable to contamination, than the infant, and because they are more active, can creep and walk to the places where the infection is, can and will play with materials containing it and get little hands that are soiled with such material into the mouth, their opportunities of acquiring infection are even greater.

In many cases where households have been invaded by diarrhœa, and the baby is suffering severely or dying from the disease, it is not uncommon to find that, though the alarm was only sounded when the illness appeared in the baby, one or other of the children between one and five was attacked first.

That the disease is infectious and that there is a grave chance of the elder children first being attacked and proving the source from which infection is handed on to the younger ones as a result of neglect of care and cleanliness on the part of the mother or other person in charge of them are facts of great importance.

Quite frequently it is possible to say that if the ex-baby had not first been infected as a result of investigating filth and dirt in the house, the street or yard, or of swallowing contaminated milk, food or fruit, the baby would never have suffered.

In relation to prevention of spread of the disease it is as necessary to know the facts stated here as it is to know that the disease is entirely a dirt disease.

If the first great lesson of hygiene were learnt, viz., that cleanliness is absolutely essential to health,

the first great step in the direction of the wiping out of epidemic diarrhœa would be taken.

The health authorities can, and it is their duty to set an example by keeping their district sanitarily up to date and spick and span by arranging for proper scavenging, providing a pure water supply and a proper sewerage system ; by urging, helping, pressing, even compelling householders to keep their houses outside and inside as free from dirt as possible, and by teaching the value and importance of cleanliness and the dangers that may result from dirt and neglect.

Health teaching, on the lines already mentioned in the case of measles and whooping-cough, with regard to the care that is to be given to the health of children in relation to cleanliness in feeding particularly, should also be undertaken and will help very greatly in reducing the risks run by them so far as this disease also is concerned.

Scarlet Fever.—Judging from the number of deaths, scarlet fever would appear to be much less of a menace to the life of the younger members of the population than measles.

Babies, apparently, are more or less exempt from infection, and children under five suffer in a much smaller degree than those who have reached the age at which attendance at school is compulsory.

That there is some risk of infection even amongst the youngest is shown by the fact that somewhere about 2,000 deaths occur annually. This means that there are probably each year about 50,000 cases altogether among the children of from one to five years old.

As with measles and whooping-cough, attention must be given not only to the possibility of saving the lives that may be lost, but also to the saving that is to be made in respect of children damaged in health by scarlet fever, or the conditions, such as rheumatism, heart disease and kidney disease, it is so apt to leave behind.

In connection with this fever, however, it is generally the case that there is not any great difficulty in getting parents to regard it more or less seriously and to recognise the importance of keeping the sick apart from the healthy. There is not the feeling with regard to the disease, as there is with measles, that it is something to be got over and to be done with.

This simplifies the problem of prevention of spread to some extent, though it may be noted that, ready and willing as parents are to practise isolation, there has been no very great diminution in the amount of scarlet fever within recent years.

The explanation offered to account for this is that isolation almost invariably is commenced too late, and only after much of the harm has been done in the early stages of the disease, before the nature of the illness has been or can be detected.

The fact that scarlet fever is difficult to recognise in many cases is now more or less admitted. It is admitted, too, that in some patients it may occur in so mild a form that they do not at all show the signs (fever, sore throat, and rash) characteristic of the disease.

Even though they do not show the signs, they are nevertheless capable of infecting others, and may do

an immense amount of damage, since they are not prevented by sickness from going about in the ordinary way.

All this creates a serious difficulty in regard to prevention. Practically in connection with protection of children from an attack the responsible persons are thrown back on the possibility of bringing this about by raising the powers of resistance of the body; by building up and maintaining health by attention to the laws of health, as regards cleanliness, feeding, sleep, exercise, clothing and fresh air, and by securing treatment for any ailment, no matter how trivial, as soon as it is detected.

In addition, of course nothing that can be done to ensure that the child's life is passed in healthy surroundings will be omitted, overcrowded rooms and large gatherings particularly being avoided.

TUBERCULOSIS, which causes annually amongst young children a number of deaths not far short of that traceable to measles and whooping-cough, the most dreaded of all childhood diseases, and leads to an infinitely greater amount of crippling and invalidism, is more in evidence in the years between one and five than in infancy.

Tuberculosis of the lungs, or consumption, is not common amongst children—a fact which, according to some, is to be regarded as proving that the germ or infection is not often taken in with the air breathed.

Most commonly, at any rate, in childhood and in the cases that prove fatal, the parts affected are the bowels (consumption or tuberculosis of the bowels) or the coverings of the brain (tuberculous meningitis). In cases that do not generally end in

death in early life it is the bones and joints or the glands in the neck or elsewhere that are attacked.

In the majority of the children affected in one or other of these localities it is claimed that the infection was swallowed and entry into the body made along with food, and more especially milk.

If this is the case, clearly the first and most important step to be taken is the giving of attention to the milk supply. A milk that is free from the germs of tuberculosis must be provided for the use of children.

The proportion of milks that are sold though they are not free from these germs is considerable, some authorities placing it as high as 10 or 15 per cent. of all milks. One of the most striking features in connection with the sale of such milks is the tendency of certain milk producers and milk sellers to regard the presence of the tubercle bacilli as almost inevitable.

It is not easy, of course, nor is it possible without considerable expenditure, to get milk herds free from tuberculosis, but here and there a few persons engaged in the milk trade have tried it and have succeeded. Others amongst the better sort of dealers, despairing of getting a milk which they are prepared to guarantee free from the disease germ, have compromised by pasteurising the milk, heating it sufficiently to destroy any consumption germs that may be present.

As a matter of fact, for those who feel strongly on the matter of these germs in milk and desire to take no risks where children are concerned there is nothing for it but to resort to boiling of all milk before use.

Certainly where it is to be used for a child who is

not robust and resistant the proper course is to boil it.

Because, as already noted, it is not entirely a matter of the germ alone, the individual into whom the germ enters playing a great part, it is necessary that he too should be taken into consideration.

Most people—most of the people under discussion, viz., the "young children"—are capable of resisting the consumption germ and other germs as well.

By taking care of the little ones, exercising supervision over their health in the ways so frequently mentioned already, by seeing that they live under the best sanitary conditions, the ability to resist can be produced and can be maintained.

In regard to consumption, even more perhaps than any other disease, the importance of looking out for conditions that call for medical treatment should be particularly impressed.

Especially should the necessity of looking after the teeth be grasped. Quite frequently, it would seem, the germs of consumption reach the system through defective teeth ; and though there are many who hold and advise that it is unnecessary to have decayed teeth attended to in childhood, this view should be accepted with reserve. It is best to take no risks where children are concerned, and to have any tooth with a hole in it made as sound as it is possible for a good qualified dentist to make it.

Bronchitis and Pneumonia between them contribute annually something over 25,000 to the deaths amongst children between one and five years old, and are responsible for over 20 per cent. of the total number. They are both now commonly regarded

as infectious diseases, or at least as due to germs. Being so, they are, or should be, preventable diseases.

Chill, always popularly considered of prime importance in relation to these conditions, and even now quite commonly regarded as the main cause, probably plays comparatively a small part in their production.

Even though it may do so, even if cold and wet weather may be only secondary amongst the causes, the diseases are not any the less preventable. Since, indeed, any possible effects of wet climatic conditions can be met by the exercise of common sense and by the proper use of clothing, the diseases are rendered all the more preventable.

In many of the cases included amongst the thousands that occur there is no doubt that the attack of bronchitis or pneumonia arose out of carelessness and neglect. In many cases the death that followed was due to neglect or ignorance in relation to the treatment of the child.

In many cases the attack began as, or was mistaken for, a " simple cold," and the dangerous view that a " cold " is nothing to be alarmed about and can be left to look after itself is very commonly held.

The cold that led to death from pneumonia or bronchitis was one neglected at the beginning. Being neglected, it quickly obtained a very firm grip upon either the windpipe or the lungs of the child, and, producing bronchitis or pneumonia, led, eventually to a fatal termination.

Young children stand affection of any part of the breathing apparatus very badly. The air-tubes and tissues are very small and delicate and very easily

become blocked, producing a more profound effect, with greater strain on the heart, than in the case of older individuals.

Quite frequently, it seems probable, the infection of the child with the disease takes place from an older person suffering from a " cold " and comparatively little disturbed by it, the same germs that caused only the slight headache, the sneezing, and the coughing in the adult giving rise to the more serious condition in the younger patient.

The child who is most readily attacked by the germs is, in the main, the child who lives under the most unfavourable circumstances from the sanitary point of view ; whose home is dirty, unventilated, and overcrowded ; who is himself neglected in the matter of fresh air and exercise, of food and clothing.

This is the child, too, who has the poorest chance of recovering from the attack—partly because of the surroundings, partly because of the lack of stamina, partly from lack of proper treatment, hygienic, medical and nursing.

The fact that these diseases, pneumonia perhaps more particularly, are infectious, and to some extent dependent on sanitary conditions, and that prevention is a matter for the public health authorities as well as the child's natural protectors, is one to which attention should be directed.

Amongst the general population pneumonia is a disease with regard to certain aspects of which a sufficiently serious view is not taken.

It is not properly grasped that it is responsible for a very large number of deaths annually, and that by

weakening the lungs it very often allows the seeds of consumption to take root.

The number of instances in which more than one member of a family is attacked is large enough to leave little room for doubt that it is infectious, even if the existence of a special germ associated with it were not definitely proved. This germ is always given off by the infected person, and is easily found in the expectoration by the bacteriologist.

In a large number of districts, so great is the belief in the infectivity of the disease, it is the practice to inquire very fully into every case of pneumonia of which information is received and to carry out disinfection of the patient's room and bedding.

Unfortunately it is only possible to do this in cases in which death has resulted and rather later than it should be done.

There is no doubt, however, that good results are obtained ; spread of infection may be prevented, and in any case the opportunity is given of impressing that the authorities take a serious view of the disease and think it worth while to take trouble and expend money in performing disinfection.

In parts of America, it may be noted, very great activity is shown in connection with the prevention of pneumonia, cases being isolated and the condition dealt with generally in the same way as the ordinary infectious diseases.

Apart from providing for disinfection, it is, of course, the duty of the authorities to improve sanitation generally, with a view to getting rid of this disease.

Housing, especially amongst the poor, should receive attention, the older insanitary worn-out houses being removed or else renovated. Overcrowding, having a marked influence in relation to pneumonia, should be dealt with particularly and prevented in every way possible.

Resistance to infection with the germs of bronchitis and pneumonia can be built up by attention to health generally, and since they are very apt to find their victims amongst those who are recovering from measles or whooping-cough, the greatest care and nursing must be lavished on children attacked by these diseases.

Convulsions.—An attack of convulsions in a child, while it may be alarming, is regarded by the majority of people as a not uncommon and ordinarily quite harmless event in childhood. In many cases, no doubt, the attack is slight and does not last long ; that it is not always so, and that the consequences may be serious, is shown by the fact that in a year a number of deaths not far short of 9,000 were certified as due to convulsions. This number, it may be noted, is higher even than that given for diarrhœa, which is always considered to be serious.

It is because the death figure is so high, and because the condition is conspicuously preventable, that reference is made to it here.

The bulk of the cases arise as a result of neglect to comply with the health rules, particularly those that relate to feeding. Indigestion, indeed, is the root cause of most attacks of convulsions, and it is because this is so that it is so strongly advised that

in childhood all foods that are indigestible should be carefully kept out of the diet.*

Neglect of the functions of the bowels is another very fruitful source of convulsions, and the mother who neglects to see that her child gets into good habits in this connection and fails to take precautions against constipation is laying up trouble both for herself and her child.

In regard to this function the child between one and five is possibly more difficult than the baby. As the child grows older he naturally becomes capable of looking after himself, and it is often inconvenient and troublesome for the mother to exercise care in regard to the calls of nature in the little one. But it is wise to do so, wise to accustom the child to attend to the exercise of the bowels at a fixed time each day. Equally it is unwise to become impatient and to complain and scold when the child appeals for assistance in this matter. As has been said, the mother who neglects may have cause for regret.

Many of the children who are put down as having died of convulsions in any year may, of course, have been suffering from something else in addition. The convulsions may have been merely the beginning of some serious disorder—pneumonia, for example, or measles or scarlet fever or spotted fever, or one of the other infectious diseases, which eventually leads to the death of the child. This is a fact to be borne in mind, just as it should be remembered that in childhood no case of convulsions is to be lightly

* Hints as to feeding of young children will be found in the specimen Infant Feeding Leaflet in the Appendix.

regarded. Always there should be a search for the cause at the back of the convulsions, and not simply a rush to the conclusion that teething, which is given the blame for so much, is responsible.

In a large number of cases teething or something quite simple, something that might have been prevented, may prove to have been the cause. In many cases that end fatally the death is due to convulsions and to nothing else than convulsions, which need never have occurred if only care had been exercised in relation to the simple functions of the child.

RICKETS is a disease of late babyhood and early childhood, and annually causes a considerable number of deaths in the earlier years and damages and deforms a still larger number of children. Commonly it makes its first appearance in the child attacked towards the end of the first year of life. When the child gets into his second year the condition may either improve or get steadily worse.

In many instances the symptoms appear after the child has ceased to be a baby and may interfere greatly with his progress, besides rendering him liable to attack by other diseases, particularly such as affect the breathing apparatus, the rickety child always being apt to suffer regularly from attacks of bronchitis.

Since the bones are rendered soft as a result of the disease, deformities are prone to occur, and the misshapen legs so often seen in great cities and the distorted bodies occasionally noted are most of them produced by rickets.

Medically the disease is classified as a " deficiency

disease," the tissues being starved because the wrong food is given and in wrong quantities. Bad hygiene also no doubt plays a part in its production. As a matter of fact, rickets ought never to occur in babyhood if the mother recognises her responsibilities in connection with natural feeding and the carrying out of the rules of health in respect of her infant. After weaning and in the period of early childhood it ought never to occur if the food given is of the right kind and in the right amounts; if milk plays a proper part in the diet and hygiene is attended to.

The child in the home that is dirty and overcrowded, and where there is little light and air and less method, is the one most liable to attack. Sharing his liability is the child who is rarely if ever taken out for an airing or put to sleep in the outer air; who is fed largely on articles, such as patent foods, that come out of tins, and which, though easy and convenient to prepare, are poor in fat and bone-forming substances, and difficult to digest because they consist mainly of starch, with which babies, at any rate, always have trouble.

The prevention of rickets is not really an impossible task. It is, indeed, easier to prevent than to treat, although, if it is commenced early enough, treatment generally gives good results.

No very great amount of skill is required to detect the beginnings of rickets. In this connection there is this to be noted, however, that if the mere appearance of the child is trusted to it may prove misleading, since the baby with rickets is very commonly quite fat, fatter even than the normal child. More important indications are—delay in teething; soft-

ness and flabbiness of the fleshy parts of the arms and legs; a somewhat pale and pasty or waxy complexion; tenderness of the bones, especially about the joints; enlargement of the wrists and ankles and changes in the head causing the opening in the front to get larger instead of smaller and the whole head to show an alteration in shape, with the formation of a swelling on each side of the forehead.

The child suffering from rickets cries if touched; is often restless in the night, rolling the head from side to side upon the pillow and perspiring a great deal, especially about the head.

Weakness of the muscles is a very common sign, and when rickets declares itself the child, though formerly very anxious to get on the floor and crawl and even try to walk, is apt to become listless and to give up attempts of this kind completely.

The number of signs and symptoms upon which a conclusion that a child is suffering from rickets may be based is, it will be noted, considerable. From the mother's point of view, however, the most important are probably the delay in teething and in the closing of the opening in the head and the general flabbiness of the child. As to the first-named sign, the following information with regard to teething is useful, and it should be remembered by mothers: That the first to appear should be the lower middle teeth; that they should show about the seventh month; that at twelve months a child should have at least eight teeth and the full set of twenty by the time he is two years old.

As regards the opening in the head, it may be said that this should be completely closed in a

healthy child after about the eighteenth month, though sometimes it remains open to a small extent till the end of the second year.

Prevention and Treatment.—Both prevention and treatment mean chiefly care in connection with the management and feeding of the child. Attention to hygiene is also required.

In respect of feeding it is essential that there should be provision or substitution of fresh foods, particularly milk, in place of tinned and prepared foods, and the provision or substitution of fats, in the form of cream or oil, in the earlier months. In the later months of infancy and the earlier ex-baby years starchy foods should not be given too important a place in the dietary, and plenty of fat provided, in the shape of butter or bacon fat or dripping or suet in puddings.

At every stage a hygienic mode of life should be substituted for one in which the evils of overcrowding and want of fresh air and sunlight are conspicuously present.

In these days of high food prices, amongst those who suffer the young child comes easily first. It is he who is most seriously hit by the increase in the price of milk, and every farthing that is added to the price per quart reduces his chances of getting the two or three pints per day which he actually requires; increases his chances of falling a victim to rickets.

In the case of the infant, so far at least as the poor are concerned, breast feeding being almost the rule, the risks of an attack of rickets are almost less than in that of the ex-baby, who is expected to share

what is going for the elder members of the family. The mother who must and who does breast-feed must almost of necessity give care to her baby. The mother who feeds her baby artificially has multitudes of opportunities of neglecting and injuring the child. Therefore the breast-fed infant invariably comes off best.

In the case of the ex-baby fed with the others in the house the opportunities for mismanagement and neglect, intentional or unintentional, are many times multiplied. There is always the possibility of getting more or less than enough food ; always there is the possibility that he will not get the right kind of food.

In any event, the result is the same—starvation of the tissues and probably rickets.

Since the prevention of this disease is largely a matter of management, the responsibility for preventing it is mainly on the mother, and in many cases education in connection with the methods to be adopted is required. Education in the recognition of the disease is also needed. The giving of instruction in these matters is a duty that can and should be undertaken by local authorities in the homes and in special centres (Schools of Mothercraft). The time given both by those who teach and those who learn will be found to be well spent, and to result not only in a reduction in the number of deaths, but in a strengthening of such of the children as are saved to face the strains that come in the years given to attendance at school.

In the list of causes of death rickets does not take a very high place, but the numbers of children who

die of it and the numbers of those who suffer bodily damage, who are deformed and stunted in growth as a result of it, are together sufficiently great to warrant the giving of so much consideration to it as has been given here. This is more particularly the case since, generally speaking, not nearly enough publicity is given to it, and the public, mothers especially, do not seem to attach sufficient importance to it as a condition that is eminently preventable and that should be prevented.

Venereal and other Diseases.—The same may be said with regard to a number of other diseases in the list, and not least to the venereal diseases. In respect of these last it may safely be stated that the figure given (1,286) falls far short of representing the numbers that actually died, and conveys no idea of the much larger number of children who, as a result of venereal infection, were crippled or doomed to a living death in asylums for the insane and institutions for the blind.

The attention which is now being given to the problem of the venereal diseases, the schemes that are in operation in relation to their treatment and prevention, and the publicity that has attended the inauguration of these schemes should, if they benefit any one, benefit particularly the children, who suffer so much for the errors of their parents in this connection.

If they have no other result than this it will be sufficient to justify everything that has been done and that may be done and the expenditure that the putting of the schemes into operation will entail.

Helping the Young Child.

Of preventive and protective measures that may be adopted and carried out on behalf of the young children some indication has already been given in discussing the conditions that go to swell the death-rate between one and five years.

Mainly it has been impressed that there should be no slackening in the amount of care and watchfulness expended on the child simply because he has passed out of babyhood and has acquired a certain amount of independence—appears less helpless and has some language in which to express his likes and dislikes.

The grip on life has become more firm, the ability to fight adverse conditions has been increased ; but neither the grip nor the fighting power is very great.

It is so easy to misunderstand a child, even the ordinary child of average intelligence and development. Those who are continually with him always think him bigger, much more advanced and capable, than he really is. It is so difficult to appreciate how much building up there is to be done in the very early years and how great the necessity for improving and maintaining health and resistance. Nevertheless it must be accepted that there are sanitary and social conditions in regard to the young child, not so very different from those affecting the baby, that may cause harm and call as urgently for attention. This is to be remembered. It is to be remembered, too, that, just as in the case of the baby, part of the preventive and protective work done on his behalf falls upon the mother and part upon the authorities

responsible for the health conditions generally of the place where the child resides.

As it is quite as hopeless to expect the mother to know all about a young child as it is to expect her to be possessed of all knowledge of how best to rear and feed an infant, it is essential that she should be provided with help and guidance in her task.

Visiting and Teaching.—More and more this necessity is coming to be recognised by those who have made themselves responsible for the establishment and conduct of infant consultations and schools of mothercraft. More and more the practice is growing of keeping in touch with the child after he has ceased to be a baby.

The visitor who visited the home and talked and taught about the baby finds it necessary to continue to call at intervals to talk and teach as to the ways and needs of the ex-baby and the child who is going on to school years. The doctors and teachers and workers at the consultation and school of mothercraft see the need to continue and should be encouraged to continue to hold out a welcoming hand to the mother when she comes along with the toddler.

After she has been welcomed she is helped and taught. Particularly she should be taught how to look for the occurrence of any signs indicating that all is not quite as it should be in connection with the various functions and parts of the child's body.

She is taught the needs of the child in relation to food, in relation to clothing, and in regard to sleep, exercise, and fresh air.

In most centres in which work of this kind is done

the mother is taught how to prepare the food and the clothing that the child requires. In many districts, particularly those in which the occupations for women are numerous and most of the young women go to work up till the time they are married, if not afterwards, the need for instruction in these matters is very great. It is noteworthy, however, that in the common experience the difficulty in inducing the mothers to attend classes in cookery is often very great, and that sewing classes are infinitely more popular.

At the centres, in addition to the opportunities for instruction there are offered certain medical facilities also. A doctor is commonly in attendance, and if anything in the way of illness appears in the child the mother is put in the way of getting treatment easily and quickly.

Particularly, attention is paid to such conditions as seem likely to be improved by hygienic treatment in relation to feeding and management of the child.

Dental Clinics.—In some cases special clinics are established at or in connection with the centre where treatment by a qualified dentist is provided in the event of the discovery of defects in the teeth or of conditions that may arise out of defective teeth. The work done at such clinics is of the utmost value both from an educational and a curative point of view.

In most areas there is far too little convenience provided for the obtaining of dental advice and treatment by the poor. In relation to teeth only the best is good enough, and practically none but the fairly well off can afford anything like the best.

The poor in very many districts can afford only to have teeth *extracted;* they cannot afford to have them *saved and replaced.*

To some extent that there are no conveniences for these things is due to the fact that even now the tremendous importance of sound teeth and the dangers of infection, of injury to digestion, of interference with comfort and health, and of poisoning of the system that may arise from defective and neglected teeth, have not been grasped.

Such knowledge, largely as a result of work amongst schoolchildren, is spreading, but there is much still to be done, and dental institutions more or less charitable are urgently wanted.

Rich benefactors, probably because they do not see much of defective teeth amongst those with whom they come in contact, or because they never have their attention called to the connection of fairly common conditions with bad teeth, rarely think of endowing dental clinics. This is unfortunate, and may be one of the causes at the root of the lack of facilities. Possibly also the fact, that the number of qualified dental surgeons who can afford to give much time to service at clinics, is not large may have something to do with the comparative scarcity of such places.

Whatever may be the cause, there seems to be little doubt as to the shortage and less doubt as to the urgency of the need.

Perhaps in time the shortage may be corrected. Perhaps in time, too, the necessity for any great amount of dental treatment may be reduced, as a result of the spread of knowledge with regard to the

importance of taking care of the teeth; of giving children a larger supply of foods that require to be chewed instead of the soft articles so commonly preferred, and of providing them with tooth-brushes and seeing that they use them night and morning.

The effect that would be exercised by attention to these matters would be to lead to a diminution in the number of the conditions now counted "children's ailments"—conditions that, without any particular reason, children are supposed to be almost fated to suffer from.

Important as it is, the dental clinic need not be the only one arranged for at the centre. Others, at which advice and treatment are obtainable, may be provided. Generally speaking, however, it is found sufficient and preferable to be in a position, with regard to the illnesses, to refer the mother of the child to the family doctor or, in case of need, to suitable institutions between which and the consultation there should always be a link.

Inasmuch as it is the rule at the centres and in connection with this work generally that there should be no giving of charity, no relieving of material needs, it is well that there should be a link between the institution and any bodies or institutions from which help of this kind is obtainable. In the generality of cases, such a link does exist, and the workers are usually in a position to put the deserving and those requiring help in the way of getting it.

Duties of Health Authorities.

The measures of sanitation that should be taken against the conditions that may tend to interfere

with the building up of the health and resistance of the child, or may actually lead to damage and danger to health, have largely been described already.

It is the duty of every authority charged with the care of the public health to aim at cleanliness and to perfect sanitation, and to expend money with the object of attaining these ends.

Clean air, clean and pure water, clean and pure food, are essentials, and practically only the health authority has sufficient power to see that they are at the disposal of the public.

Cleanliness of the air is favoured by cleanliness of the streets resulting from proper methods of scavenging and refuse collection and disposal; by attention to housing in the way of providing or insisting upon the provision of proper houses with a sufficiency of space, air, and light around and in them; by insisting upon the maintenance of cleanly conditions within dwellings and by putting down overcrowding.

Clean and pure water is to be obtained by choosing the source of supply for the community carefully and by adopting common-sense measures in connection with its protection from contamination.

Clean food can be assured to the inhabitants of a district by no one but the health authority, who must see that the conditions under which it is produced, prepared, and sold are clean and proper. The legal powers with which they are provided in this connection are very full.

Clean milk is particularly important, though the difficulties in obtaining even a reasonably clean milk are calculated to be somewhat discouraging to any but those blessed with a large share of determination.

Much has already been done in respect of this matter, but much still remains to be done before it is thoroughly grasped that milk is a fluid that is not only primarily a food, but a food that may very easily be transformed into a poison and a conveyor of most dangerous diseases if the utmost care is not exercised in relation to it.

If it is to be of use and safe, it must be taken from a clean, healthy cow, by a clean milker, in a clean shed, into a clean vessel. It must never be kept in anything but clean vessels in clean surroundings, and carefully protected from any possibility of being contaminated with any unclean thing until it is consumed.

Most of the milk producers and vendors who have given any thought at all to the problem of clean milk are very apt to claim that most of the uncleanness, the really dangerous part, gets into the milk in the house, after it has passed out of their hands into those of the purchaser.

There is no doubt much truth in the contention that there is great carelessness in connection with the treatment of milk in the home, particularly the poor home.

To a great extent the trouble arises because of the want of proper storage accommodation, a matter in respect of which, in smaller houses especially, there has been a great deal of neglect in the past.

Apart from this, however, there is quite a marked tendency to put milk anywhere, in anything that will serve as a container, and to leave it unprotected from the chief germ carriers, flies and dust.

The responsibility in this matter comes back

again to the mother, and again there appears to be necessity for teaching.

In the interests of the child, one of whose chief foods milk must continue to be for long after the stage of infancy, no precaution must be neglected in regard to it.

The how and the why of the precautions must be brought home to the mother. The child will benefit undoubtedly, as he is sure to benefit from any teaching given to the mother that is likely to reduce his chances of contact with germs and uncleanness.

The benefit thus obtained will not only help the child through the early years, but when he reaches school age will help him to resist the risks of attack by the infectious diseases, always greatest where, as is the case in the school, numbers of susceptible individuals are gathered together ; and will help him to meet the strain that education and growing up always lead to.

The Child of School Age.

Though there have been one or two references to the child of school age in the course of this section, most of what has been said has been in regard to younger children.

This has been intentional, the desire being to dwell more on preventive measures that are hygienic than on those that are more distinctly medical, and to press for efforts on behalf of individuals who have in the past been more or less neglected.

The child of school age now receives a great deal of attention. Generally throughout the country he

is more or less under medical supervision from the day he enters until the time comes for him to leave school, and wide provision has been made for putting into operation the measures that are needed. Mainly what is held to be necessary is to detect disease conditions and defects in health and to get treatment for them early, with a view to reducing the amount of damage that may be done.

Regular medical inspections are made of the child at definite stages in his school career, and clinics and hospitals are provided at which defects and illnesses can be treated and cured.

The results of the work done have been extraordinarily good, and, though their duties may be monotonous, there must be very few school doctors who cannot say that as a result of what they have done many children have been saved from serious trouble and even from death, have been rendered fit to become strong and healthy citizens.

Except in the case of the infectious diseases and the conditions that may arise from insufficient feeding, there is little opportunity for preventive as distinct from curative treatment on behalf of the child. Very largely the time for preventing the appearance of the diseases by attention to the hygiene of the child is past. Very many of the conditions for which treatment is required after the child has joined the school ranks arose before he came near the school, and were due to causes arising outside it.

The beginnings of adenoids, for example, and all that adenoids mean in the way of ear and other troubles, from which so many children are found to be suffering, and for which treatment is so often

required, were made in the early years of childhood. Most of the tooth troubles, too, began outside the school and arose from defects in management before the child came under supervision in school.

It is because these facts are now coming to be recognised that the cry for attention to the young child is raised by the school doctors. It is for these reasons, too, that so much space has been given to a discussion of the diseases affecting young children and the causes that lead to these diseases, and that an urgent appeal is made that, in the interests of the ex-baby and the child up to five years of age, the operations of the infant consultations should be extended to include them and the amount of general public health work done by local authorities greatly increased.

V

APPENDIX

In several places in previous pages reference is made to leaflets relating to various matters, distributed from Infant Consultations and by Health Visitors. The following specimens of some of those used in the case of St. Marylebone are introduced in order to give some idea of the form taken by such leaflets and the kind of advice and instruction they contain.

METROPOLITAN BOROUGH OF ST. MARYLEBONE.

(Public Health Department.)

Advice to Mothers During Pregnancy and Nursing.*

Keep yourself in good health. The health of your baby depends upon your own.

Take good and wholesome food at regular meals only.

Do not take spirits, beer, stout, or much tea, but rather milk or cocoa.

See that your bowels act every day.

When possible take exercise in the open air every day, and keep your window open night and day.

1. Feed your baby regularly, by the clock, and not by guesswork or whenever it cries. Babies get indigestion, feel uncomfortable, and cry if they are not fed at regular times.

* Based on information contained in a leaflet issued by the National League for Physical Education and Improvement.

2. Never give your baby a dummy teat. It is simply a bad habit, and dirty and dangerous.

3. As babies sometimes cry because they are thirsty, sips of warm water may be given.

Rules for Daily Use.

Let the baby sleep in its own cot and lie in it during the day. A banana crate, box, basket, or drawer serves equally well. If the child cries see if its napkin wants changing or if the baby is cold and not properly covered up. Never rock the baby. Wake the baby up at the proper time for feeding during the day only.

Clothing.—Give the baby a warm woollen vest with long sleeves, a soft knitted binder, a long flannel night-dress, and an outer dress. Do not use a tight or stiff binder. Never use flannelette.

" Shorten " at two to three months old. Keep to the vest and knitted binder, and one flannel petticoat and dress, but now put on warm stockings instead of socks.

Bath the baby once a day, and wash it once a day as well, using very little soap. Dry thoroughly, especially in ears and all folds of skin.

Undress and dress the baby quickly so that it does not catch cold. Babies must always be kept warm.

The windows of the bedroom and living-room, except at bath time, should always be kept open at the top, as wide as the weather will allow. The baby should be kept out of doors in the daytime as much as possible, and may sleep out of doors in mild weather in a sheltered place.

Do not give soothing syrups, teething powders, or purges without the doctor's orders.

Babies should be weighed regularly.

If a baby cries often,
does not increase in weight,
does not sleep,
is frequently sick,

If a baby is constipated,
has diarrhœa,
snuffles,
has cold feet,
has a discharge from the eyes,
or has a rash on the body or under the napkin,
it is not well, and should be seen by the doctor.

Further information will gladly be given at the Public Health Department, 24, Somerset Street, Portman Square, W., or at the Infant Consultations.

The Infant Consultations in this district are :—

Welbeck Street Dispensary, Tuesdays 10.30 a.m., Thursdays 2.30 p.m. ; Ogle Mews, Foley Street, Tuesdays 2 p.m. ; School for Mothers, 136, Church Street, Mondays 10 a.m., Wednesdays 2.15 p.m., Fridays 2 p.m. ; Lord Robert Cecil Club, 79, Henry Street, Wednesdays 2 p.m.

CHARLES PORTER,
Medical Officer of Health.

BREAST FEEDING.

Mother's milk is the best, cheapest and safest food for infants.

1. Get your baby into good and regular habits of feeding. Babies form bad habits just as easily as grown-up people.

2. Keep the child at the breast about $\frac{1}{4}$ hour at each feed.

3. Do not feed more often than every two-and-a-half hours during the day. Night feeding is unnecessary. Never let the baby feed too fast. Wake the baby if asleep at feeding times during the day only.

The time between the feeds should be gradually increased until at the beginning of the third month the breast is given every three hours, and at the age of six months five times in the day and not at all between

11 at night and 6 in the morning. The best times are 6 a.m., 10 a.m., 2 p.m., 6 p.m., and at 10 p.m. In this way the mother gets a rest at night, and so does the baby's stomach.

If you think the baby is not thriving on the breast, do not give up breast feeding before the age of nine months without asking a doctor.

Weaning.—Keep the baby on the breast entirely for nine months, if possible. Never wean during July, August or September, if you can help it. Wean slowly, giving first one feed of cow's milk a day and then gradually increasing the number. Crusts of bread with butter or dripping and a lightly-boiled egg may now be added.

From One Year Upwards.—Do not give butchers' meat before the age of eighteen months. Children must have no tea or stimulants, and such articles as pork, shell-fish, fried fish, lobsters, baked pastry, new bread and hot cakes, are liable to cause illness, and must be carefully avoided. They should have three or four meals a day, and no food or sweets should be taken between meals. Beer and spirits are injurious to a child and must never be given.

Bottle Feeding.

Note.—These directions are not intended to apply to those babies who are ordered a special diet by a doctor.

Give only milk until the baby is about nine months old. Do not give condensed milk or any other infant food unless ordered by the doctor.

Never give separated or skimmed milk to a baby.

Milk.—Get good fresh milk twice a day. Boil it at once, pour it into a *clean* jug, cover with a *clean* cloth, and stand the jug in cold water. In hot weather the water should be changed often so as to be as cool and fresh from the tap as possible.

Bottle.—Bottles with long tubes should *never* be used.

Wash the bottle and teat thoroughly in hot water after each feed, and keep them in clean cold water until the next feed. When washing the teat turn it inside out and hold it under the tap.

Feeding.—Measure the milk carefully. Give the same amount at each feed, not more one time than another. If the child does not finish the feed, what is left should not be given again to the baby. Give the milk warm.

From ¼ to ½ teaspoonful of fresh cream should be added to each feed, and the same amount of white sugar. About ½ teaspoonful of olive or cod liver oil should be given twice a day if no cream is put into the bottle.

From Birth to Three Weeks Old.—Never feed more often than every two-and-a-half hours in the day.

At first the baby does not want more than 1 tablespoonful of milk and 2 tablespoonfuls of water. By the time it is three weeks old it may be having 1 to 1½ tablespoonfuls of milk and 2 of water.

From Three Weeks to Three Months Old.—Gradually increase the quantity at each feed up to 3 to 4 tablespoonfuls of milk and 3 of water, and the times between feeds to every three hours.

From Three Months to Six Months Old.—By the time the baby is six months old it should take 6 to 7 tablespoonfuls of milk and 2 of water at each feed. Do not feed more often than every four hours.

From Six to Nine Months Old.—Gradually decrease the water until the baby is taking 8 to 10 tablespoonfuls of milk and no water at each feed. A little orange juice or stewed apple may now be given.

From Nine to Twelve Months Old.—Continue to give milk, but crusts of bread with butter or dripping, and a lightly-boiled egg may be added.

From One Year Upwards.—Do not give butchers' meat before the age of eighteen months. Children must have no tea or stimulants, and such articles as pork, shell-fish, fried fish, lobsters, baked pastry, new bread and hot cakes are liable to cause illness and must be

carefully avoided. They should have three or four meals a day, and no food or sweets should be taken between meals. Beer and spirits are injurious to a child and must never be given.

Keep this by you for Reference.

METROPOLITAN BOROUGH OF ST. MARYLEBONE.

Summer Diarrhœa.

Every summer, during the warm weather, many hundreds of babies suffer from sickness and diarrhœa, and very many die.

This illness is nearly always caused by dirt getting into baby's mouth in some way, from dirty feeding bottles, dirty teats, dirty dummies and dirty hands.

Wrong feeding makes it worse, and bottle-fed babies are more likely to suffer than breast-fed babies.

With care mothers can keep babies from catching the disease.

1. *What to do to keep sickness and diarrhœa away :—*

(1) Feed baby on the breast, and keep the nipples very clean.

(2) Do not wean baby during the hot weather.

(3) If baby must be fed on the bottle, do not use a long tube bottle.

(4) Only use a clean boat-shaped bottle.

(5) Boil baby's milk as soon as it is taken from the milkman, and keep it covered.

(6) Only make one feed at a time.

(7) Do not use old feeds. If baby does not finish all there is in the bottle, the rest may be used for cooking purposes.

(8) Wash out the bottle and teat in hot water directly

baby is fed, and keep them in cold water till the next feeding time.

(9) Always have the bottle and teat quite clean before putting in the feed.

(10) Do not use a dummy teat.

(11) Special care should be taken as to the cleanliness of floors and bedding.

(12) Keep all food covered from flies and dust, which spread the disease.

2. *What to do if baby catches the disease :—*

(1) Remember that the illness is serious. Even if baby is teething, send for the doctor at once.

(2) As soon as sickness and diarrhœa begin, stop giving baby milk and food, and give only pure hot water, sweetened with a little sugar, every half-hour.

(3) Keep baby warm. Put on a flannel binder, and put a hot-water bottle to the child's feet.

(4) Open all windows at the top.

(5) Remember that the illness is catching. Always wash the hands after changing baby, and disinfect all soiled clothing by boiling.

(6) If the house drains get stopped up, or the supply of water gets low, tell your landlord and write to the Medical Officer of Health, 24, Somerset Street, Portman Square, W.

METROPOLITAN BOROUGH OF ST. MARYLEBONE.

(Public Health Department.)

Flies are Disease Carriers.

(*Diarrhœa, Typhoid Fever, Diphtheria, Consumption, etc.*)

Flies found in houses, on the walls, the ceilings, the food, and the people, are born and bred in manure heaps and dust bins, and collections of dirt and filth.

They feed on filth and carry with them filth germs and germs of disease.

Everything upon which the fly rests, more especially food, receives some of these germs.

The milk into which the fly falls gets the biggest share. In the milk the germs grow and multiply very quickly.

Amongst the diseases spread by flies are diarrhœa, typhoid (enteric) fever, diphtheria and consumption.

To keep flies away :—

In clean, airy rooms flies are few.

Keep your house clean. Keep your house and your yard free from collections of dirt and refuse. If you see any undue collection of refuse in a yard or elsewhere, complain to the MEDICAL OFFICER OF HEALTH, 24, Somerset Street, Portman Square, W.

To free houses from flies :—

Keep your house clean and well aired. Open doors and windows as much and as wide as possible. If necessary, open windows may be screened with muslin. For catching flies use sticky or other fly papers. If a house or room is badly infested with flies, complain to the MEDICAL OFFICER OF HEALTH, 24, Somerset Street, Portman Square, W.

To protect food from flies :—

Keep all food—meat, sugar, jam and milk, especially the milk to be used by a baby, covered.

Muslin may be used for the purpose. Baby's face during sleep should also be screened with muslin.

This leaflet is issued from the St. Marylebone Public Health Department (24, Somerset Street, Portman Square, W.), where advice and assistance in connection with all matters affecting health can always be obtained.

BOROUGH OF ST. MARYLEBONE.

Measles.

Precautions to be observed :—

Measles is a dangerous and very infectious disease, and no child should be allowed to come in contact with it if this can by any means be avoided.

The following hints will show you how to keep the disease from spreading to your own children and those of others, and will also help towards the recovery of the sick child.

Keep the patient to himself directly the disease is suspected.

Keep him in bed so long as there is any fever, being careful to protect him from draughts and chills. The patient's chest should be specially protected by flannel or cotton wool for some time after the illness.

Watch all children in the family, and as soon as they show any signs of illness put them in a room apart from the others.

Do not wait until the patient is dangerously ill before seeking medical advice ; it may then be too late.

Children in the Infants' Department are not to attend school until the disinfection of the house (or rooms) has been completed.

Children in the other departments may continue to go to school, if they have had measles.

The younger children must not mix with the children of other families until after the disinfection has been carried out.

The sick room and its contents will be disinfected after the recovery of the patient by the staff of the Council free of charge.

Public Health Department,
24, Somerset Street, Portman Square, W.

Borough of St. Marylebone.

Measles.

An Order made by the London County Council and duly confirmed by the Local Government Board, applies to measles the sections of the Public Health (London) Act, 1891, relating to disinfection and the spread of infection. The principal provisions of the sections thus applied are :—

1. You must carry out or arrange for disinfection and cleansing of infected houses, rooms, bedding, clothing, etc. (Sections 60 and 61.)

2. You must not throw infected rubbish into dustbins. (Section 62.)

3. You must not let an infected house or room without previous disinfection. (Section 63.)

4. You must not make a false statement to a prospective tenant as to the occurrence of infectious illness in any house or room. (Section 64.)

5. You must not vacate an infected house without previous disinfection or notice thereof to the landlord or owner of the house, or give false answers to questions on the subject. (Section 65.)

6. You must not expose an infected person or articles. (Section 68.)

7. An infected person must not carry on any occupation in such a way as to spread infection. (Section 69.)

8. An infected person must not use a public conveyance.

A driver of a public conveyance used by an infected person must notify such use to the sanitary authority and have the conveyance disinfected. (Section 70.)

9. You must not retain, without special certificate, for more than 48 hours, the body of any person dying of an infectious disease in any room inhabited by other persons. (Section 72.)

Under certain circumstances the sanitary authority may require the body of any person dying in hospital

from an infectious illness to be taken from the hospital direct to the place of burial.

Public conveyances are not to be used for conveying the body of any person dying from an infectious illness.

Heavy fines may be imposed for neglect or breach of the above laws.

Note.—The words "infectious illness" mean and include measles; "infected" means infected with measles.

METROPOLITAN BOROUGH OF ST. MARYLEBONE.

(Public Health Department.)

Important Notice as to Whooping-Cough.

1. There is a great deal of whooping-cough about just now, and every week young children are dying from it.

2. Whooping-cough is extremely "catching." It is one of the worst illnesses a child can have, for it lasts often for two months or more, and it weakens a child very greatly, laying it open to much more serious diseases, such as consumption.

3. Don't go into your neighbour's house if there is anyone ill there, until you have heard from the doctor that the illness is not infectious. You can carry the infection in your clothes back to your own children.

4. If your child has fits of coughing, or whoops after coughing, or is sick after coughing, send for a doctor, and, until he comes, treat the illness as though it were whooping-cough.

5. If your child should have whooping-cough, keep him away from other children: keep the neighbours out: receive all coughed-up matter on little pieces of soft, old rag, and burn at once. Do the same with all discharges from the nostrils.

6. Keep all the children away from school till the "whoops" have finished.

7. Keep the house and everything about it clean and well aired.

8. Keep the child's chest well wrapped up. If there should be any difficulty in breathing, or any pain in the chest, or any blueness of the face or lips, or any twitchings, or convulsions, or fits, send for a doctor at once. It is these after-effects of whooping-cough which kill so many children.

METROPOLITAN BOROUGH OF ST. MARYLEBONE.

(PUBLIC HEALTH DEPARTMENT.)

PUBLIC HEALTH (LONDON) ACT, 1891.*

Notice as to the Prevention of Infectious Disease.

The commission of any of the under-noted offences, or the omission of any precaution imposed by this Act, renders the responsible person liable to a heavy penalty.

(1) *Reporting Cases of Infectious Disease :—*

Whenever any person is suffering from an Infectious Disease, this fact must be reported to the Medical Officer of Health of the District, at 24, Somerset Street, Portman Square, W., without delay, by one of the following persons :—

(*a*) The head of the family, or

(*b*) the nearest relative of the patient in the house, or

(*c*) any person in charge of, or in attendance on the patient, or

(*d*) the master of the house.

* Very similar provisions are contained in Acts applicable to areas outside London.

(2) *Exposure of Infected Persons and Things :—*

(i.) " If any person—

" (*a*) While suffering from any dangerous infectious disease wilfully exposes himself without proper precautions against spreading the said disease in any street, public place, shop, or inn ; or

" (*b*) Being in charge of any person so suffering, so exposes such sufferer ; or

" (*c*) Gives, lends, sells, transmits, removes, or exposes, without previous disinfection, any bedding, clothing or other articles which have been exposed to infection from any such disease ;

he shall be liable to a fine not exceeding five pounds."

" (ii.) Provided that proceedings under this section shall not be taken against persons transmitting with proper precautions any bedding, clothing or other articles for the purpose of having the same disinfected." (Public Health (London) Act, 1891, sect. 68.)

(3) *Carrying on of Business by Infected Person :—*

" A person who knows himself to be suffering from a dangerous infectious disease shall not milk any animal, or pick fruit, and *shall not engage in any occupation connected with food* or carry on *any trade or business* in such manner as to be likely to spread the infectious disease, and if he does so he shall be liable to a fine not exceeding ten pounds." (Public Health (London) Act, 1891, sect. 69.)

(4) *Infected Persons and Public Conveyances :—*

No infected person must enter any public conveyance (cab, 'bus, tube, railway, etc.).

No owner or driver of a public conveyance must knowingly convey an infected person.

No one must knowingly place in a public conveyance any infected person.

If any infected person be conveyed in a public conveyance, the owner or driver must give notice to the sanitary authority and must disinfect the conveyance or arrange with the sanitary authority to have it disinfected.

(5) *Infectious Rubbish, etc. :—*

No person must cast or cause or permit to be cast any infectious rubbish into an ashpit, dustbin, etc., unless it has been previously disinfected.

(6) *Letting Houses :—*

" (i.) Any person who knowingly lets for hire any house, or part of a house in which any person has been suffering from any dangerous infectious disease, without having such house or part of a house, and all articles therein liable to retain infection, disinfected to the satisfaction of a legally qualified medical practitioner, as testified by a certificate signed by him, or (as regards the articles) destroyed, shall be liable to a fine not exceeding twenty pounds.

" (ii.) For the purposes of this section the keeper of an inn shall be deemed to let for hire part of a house to any person admitted as a guest into such inn." (Public Health (London) Act, 1891, sect. 63.)

" Any person letting for hire, or showing for the purpose of letting for hire, any house or part of a house, who, on being questioned by any person negotiating for the hire, as to the fact of there being, or within six weeks previously having been, therein any person suffering from any dangerous infectious disease, knowingly makes a false answer to such question, shall be liable, at the discretion of the court, to a fine not exceeding twenty pounds, or to imprisonment, with or without hard labour, for a period not exceeding one month." (Public Health (London) Act, 1891, sect. 64.)

" (i.) Where a person ceases to occupy any house, or part of a house, in which any person has within six weeks previously been suffering from any dangerous infectious disease, and either—

" (*a*) Fails to have such house or part of a house, and all articles therein liable to retain infection, disinfected to the satisfaction of a legally qualified practitioner, as testified by a certificate signed by him, or such articles destroyed ; or

" (*b*) Fails to give to the owner or master of such house, or part of a house, notice of the previous existence of such disease, or

" (*c*) On being questioned by the owner or master of, or by any person negotiating for the hire of, such house or part of a house, as to the fact of there having within six weeks previously been therein any person suffering from any dangerous infectious disease, knowingly makes a false answer to such question,

he shall be liable to a fine not exceeding ten pounds." (Public Health (London) Act, 1891, sect. 65.)

(7) *Infectious Dead Bodies* :—

" (i.) A person shall not, without the sanction in writing of the Medical Officer of Health, or of a legally qualified medical practitioner, retain unburied for more than forty-eight hours elsewhere than in a room not used at the time as a dwelling place, sleeping place, *or work-room*, the body of any person who has died of any dangerous infectious disease." (Public Health (London) Act, 1891, sect. 72.)

If—

" (*a*) A person hires or uses a public conveyance other than a hearse for conveying the body of a person who has died from any dangerous infectious disease, without previously notifying to the owner or driver of the conveyance that such person died from infectious disease, or

" (*b*) The owner or driver does not, immediately after the conveyance has to his knowledge been used for conveying such body, provide for the disinfection of the conveyance, he shall, on the information of the sanitary authority, be liable to a fine not exceeding five pounds." (Public Health (London) Act, 1891, sect. 74.)

Note.—The words " infectious," " infection," " infected," etc., used in this notice refer to the *following diseases which are scheduled as infectious and as giving rise to infection* :—Scarlet fever or scarlatina, smallpox,

cholera, diphtheria or membranous croup, erysipelas, typhus, typhoid, enteric, relapsing, continued or puerperal fevers, plague, and epidemic cerebrospinal meningitis or "spotted fever."

The following is a complete list of the leaflets issued by the Department, and a copy of any or all of them may be obtained, gratis, at this office upon application :—

1. "The Prevention of Infectious Disease."
2. "Measles."
3. "Whooping-cough."
4. "Summer Diarrhœa."
5. "Precautions against Consumption."
6. "Children's Eyes and How to Care for Them."
7. "Advice to Mothers on the Rearing of Infants."
8. "Flies are Disease Carriers."
9. "Hints on Food and Feeding."

CHARLES PORTER,
Medical Officer of Health.

METROPOLITAN BOROUGH OF ST. MARYLEBONE.

(PUBLIC HEALTH DEPARTMENT.)

PRECAUTIONS AGAINST CONSUMPTION.

Consumption is an infectious disease. It is caused by a microbe or germ, which grows in the lungs of the patient. The sputum (spit) coughed up by the patient contains a great many of these germs. When this sputum is allowed to dry it may become powdered into a fine dust and get into the air. Persons breathing this air may then take the germs into their lungs, and after a time become consumptive. This is how Consumption is spread from one person to another.

A consumptive patient should on no account spit on the floor of any room, workshop, theatre, or other place where people assemble ; or on the floor of any railway carriage, tram-car, or other public conveyance ; or on a street pavement.

Nor should the patient spit into an ordinary pocket handkerchief. The sputum soon dries in the pocket, and when the handkerchief is next used a cloud of infective dust may be scattered around the patient.

A consumptive patient who does not take care to destroy his sputum before it becomes dry is a source of danger to other people and to himself, for he may, when almost cured, start the disease afresh by breathing his own dried sputum.

At home the patient should spit into a piece of paper or clean rag, which should be at once burnt on the fire. If there is no fire the patient should spit into a jar, pocket spittoon, or other vessel containing water or some fluid disinfectant, to keep the sputum moist. The vessel should be emptied twice a day down the water-closet, and then thoroughly cleansed with boiling water before being again used.

Outside the house the patient should spit into a pocket spittoon, which should contain a little water or fluid disinfectant, and should be kept perfectly clean. Or the patient may carry a number of pieces of soft paper, or clean rags to spit into. These should never be carried loose in the pocket after being used, but should be put into a tobacco pouch, sponge bag, or other waterproof receptacle. On returning home the paper or rags should be burnt, and the pouch or bag well washed with disinfectant.

All persons who have a chronic cough should carry out the above precautions.

The knives, forks, spoons, plates, cups, etc., used by a consumptive patient should be put into boiling water immediately after use, and should never be used by another person.

The patient's night-clothes, sheets, pillowslips, etc., should not be mixed with the general washing of the family, nor sent to a public laundry, but should be boiled and then washed by themselves at home.

A consumptive patient should, if possible, occupy a separate bedroom, or at least a separate bed. The rooms should have plenty of sunlight and be kept well ventilated and well lighted. The windows should always be open. Fresh air and sunlight will not only help the patient to recover, but will also help to prevent the other members of the family from becoming consumptive.

Carpets, curtains and upholstery should not be used in a consumptive's room. If already in use they should be removed and disinfected. If the patient's clothes, pillows or bedclothes become soiled with sputum they should be at once disinfected by steam or washed with boiling water.

The floor of a consumptive's room should be thoroughly washed with soap and water at least once a week and should always be kept free from dust. The floor should not be swept until tea leaves moistened with disinfectant have first been scattered over it to prevent the dust from rising.

The best way to remove the dust is to wipe the floor with a wet cloth. The articles of furniture, etc., in the room should be dusted with a damp duster. Dry dusting and sweeping may scatter infectious dust about the room and thus be a source of danger to the patient and to other persons. Every three months the walls should be rubbed down and the material with which this is done afterwards burned.

Consumptives should not kiss on the lips.

A male consumptive should not wear a beard or moustache, but should be clean shaved.

When it has been decided that anyone is suffering from consumption the house should be thoroughly disinfected.

On a request made in writing to the Health Department, disinfection will be carried out free of charge.

Consumption was formerly thought to be an incurable disease. This is a great mistake. Recovery from consumption is not at all uncommon. It depends largely upon the careful observance of the rules on this card. Other important points are :—

Plenty of nourishing food.

Abstinence from alcohol unless it is ordered by a doctor.

What is good for the cure of Consumption is good for the prevention of Consumption. People who keep their windows open and their houses and bodies scrupulously clean, and abstain from the excessive use of beer, wine, or spirits, are doing a good deal to keep away Consumption.

PUBLIC HEALTH DEPARTMENT,
24, Somerset Street, Portman Square, W.

Keep this by you for reference.

METROPOLITAN BOROUGH OF ST. MARYLEBONE.

(PUBLIC HEALTH DEPARTMENT.)

CHILDREN'S EYES AND HOW TO CARE FOR THEM.

Inflammation in the eyes of the new-born child is a very dangerous and infectious illness, and if prompt measures are not taken may entirely destroy the sight.

1. When a child is born, it is wise to thoroughly wash out its eyes with water. The baby's eyes should be examined daily for a week after birth, and if there is the slightest discharge send for the doctor at once.

2. Remember that this disease is very catching if the discharge should get into the eye of another person.

3. In every case of injury to the eye, however slight, get a doctor's advice at once, and do not trust such a

serious matter to a chemist, who, through ignorance, may use measures which might result in permanent blindness.

4. If you are nursing your child through measles, scarlet fever, etc., be very careful to follow your doctor's instructions even after your child is better, as the sight may be greatly injured in this kind of illness.

5. Never allow your children to read, write or sew in a bad light, or they may permanently damage their eyesight.

6. Never allow your child to wear glasses until the doctor has examined the eyes, and ordered them. You are warned against the advertisements of so-called "eye specialists," chemists posing as "opticians," "sight testers," and the like.

7. If you notice that your child has to bend closely over books or work, or screws up his eyes when looking at things at a distance, or holds his head crookedly under the same circumstances, or suffers from pains in the head, there is probably something wrong with the eyes, and he should be promptly taken to a doctor or to the eye hospital for treatment. All children over a year old who squint should be taken to the doctor or the eye hospital at once.

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